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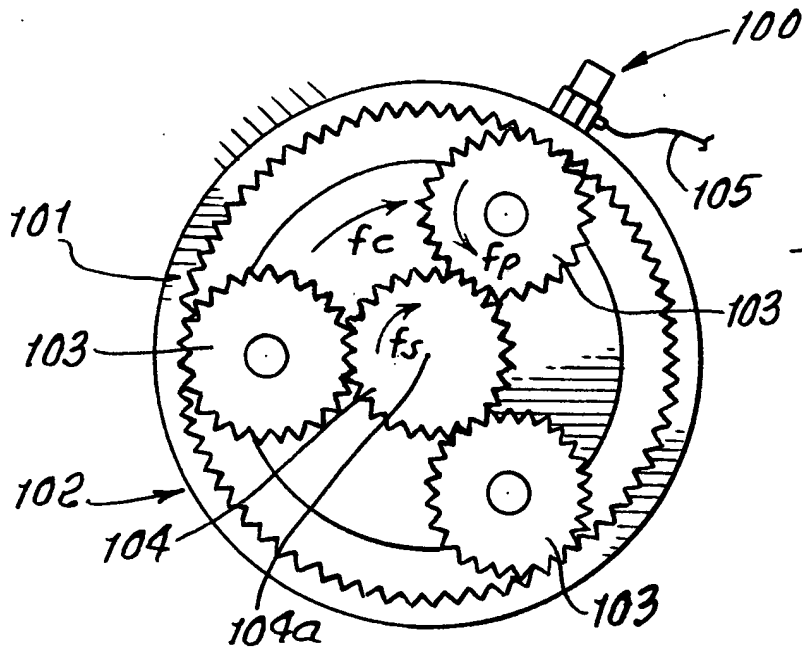


FIG. 1.1

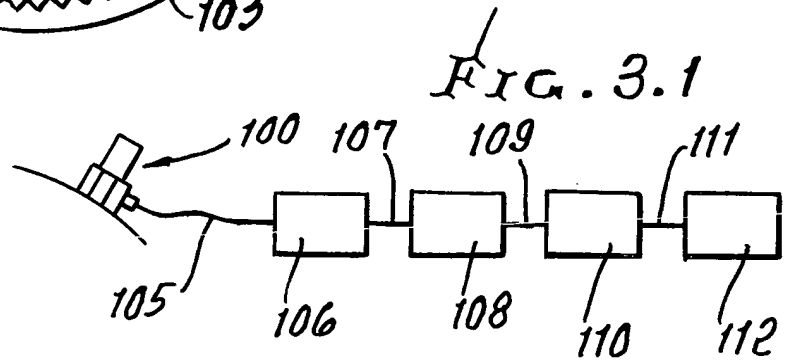


FIG. 3.1

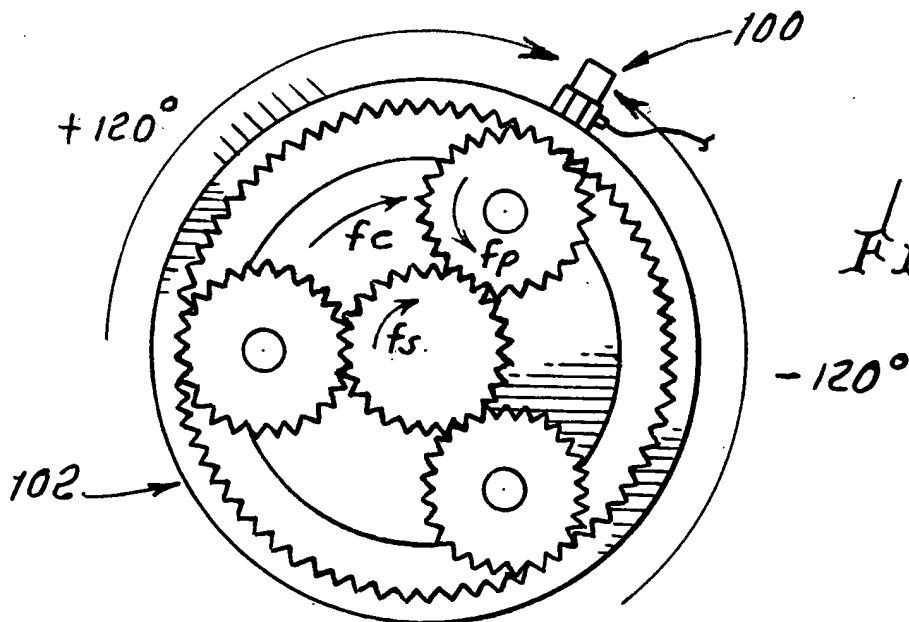
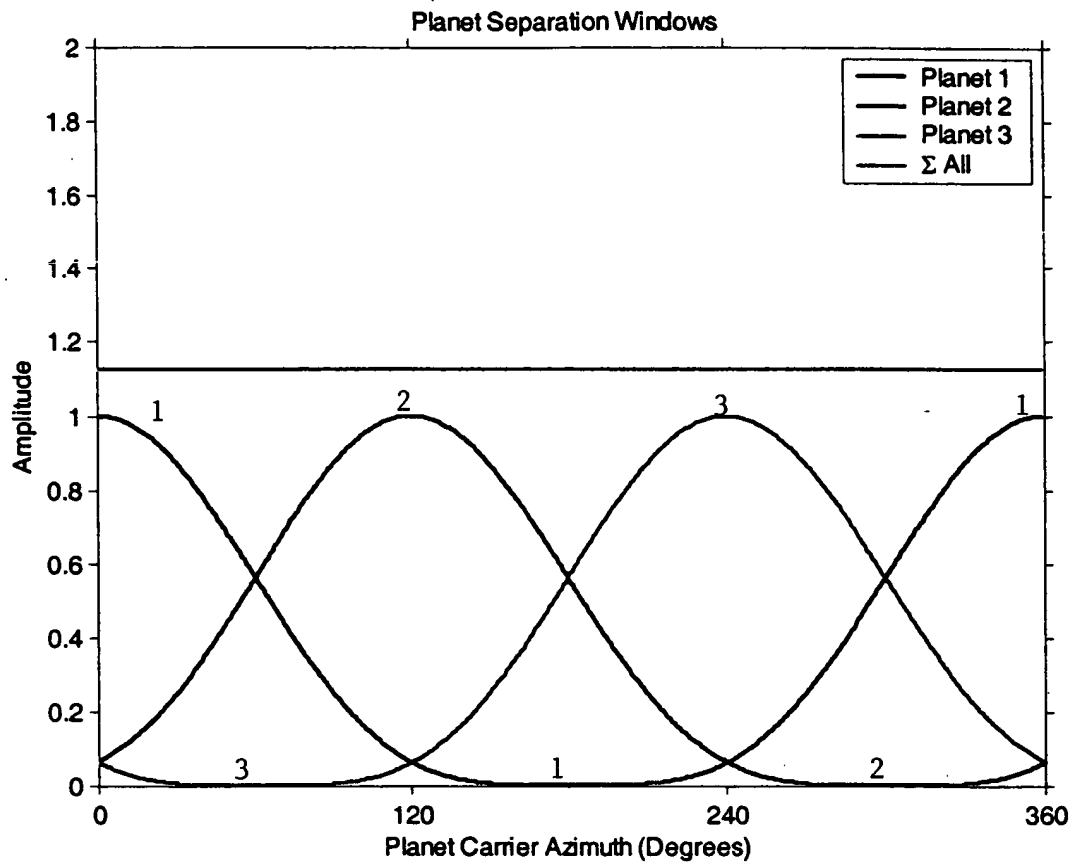


FIG. 2.1

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FIG. 1.2a



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FIG. 1.2b

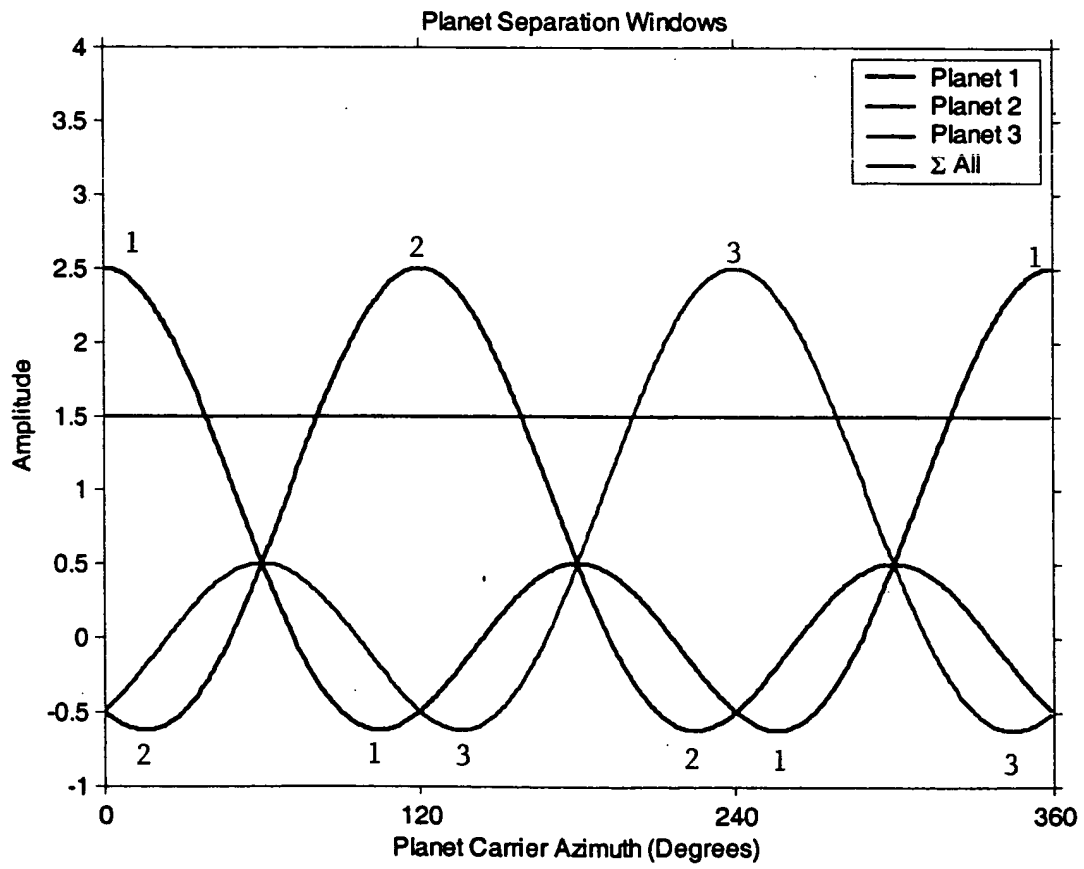
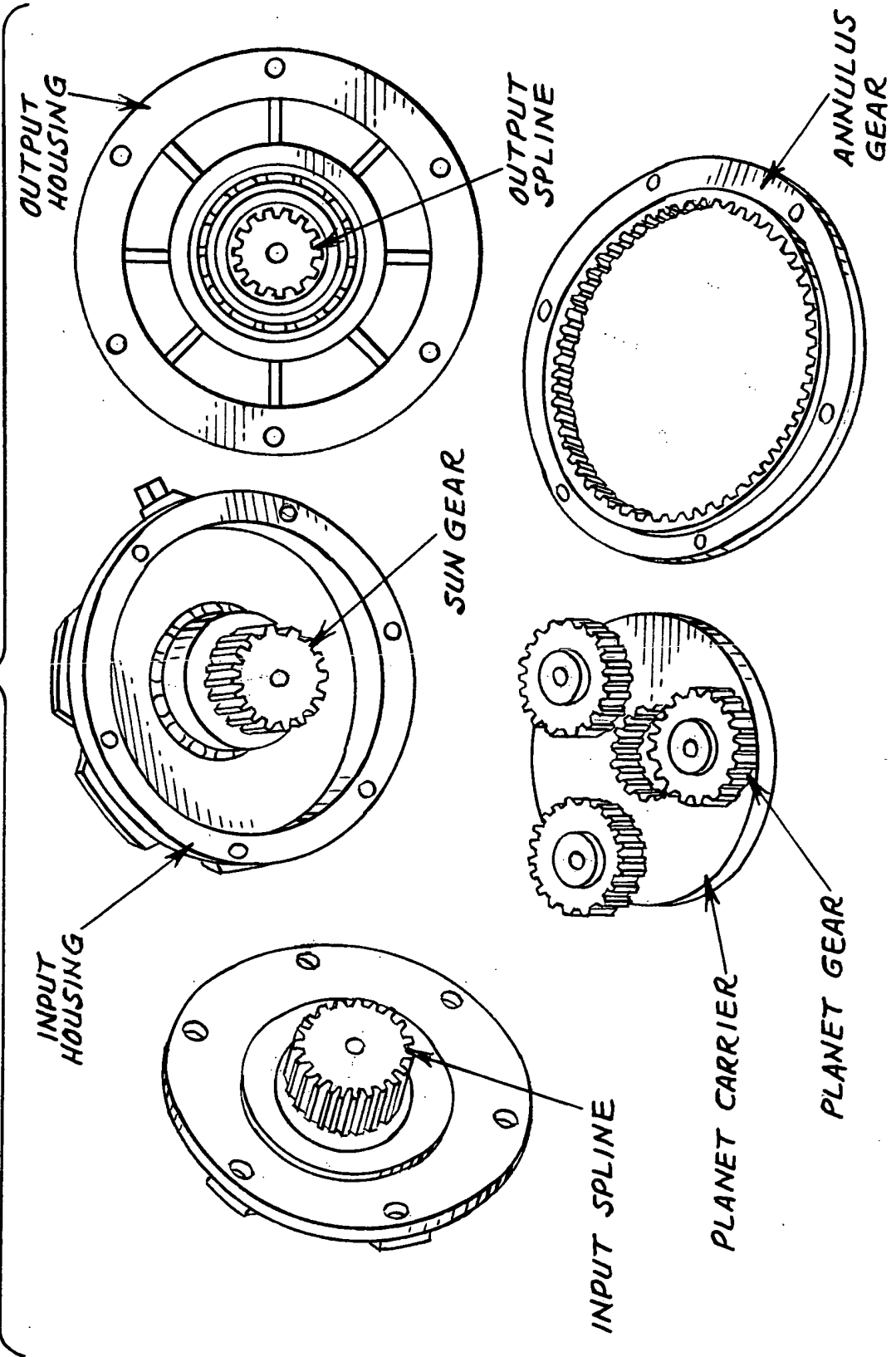


FIG. 4.1



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Sun gear separations ($window = w_{power}(t)$) - no fault.

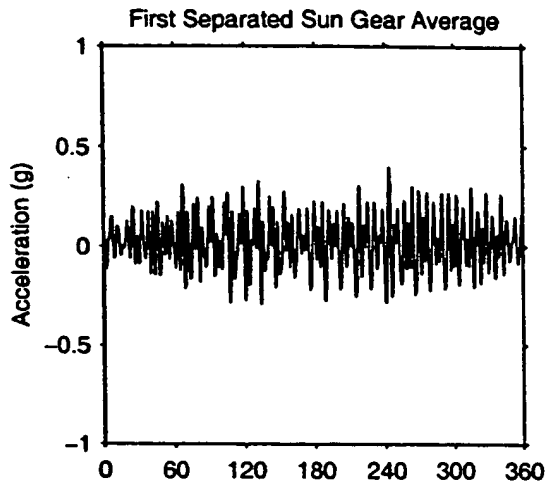


FIG. 4.2a

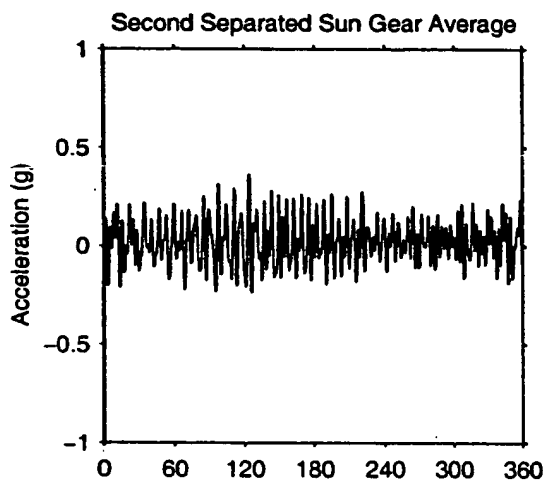


FIG. 4.2b

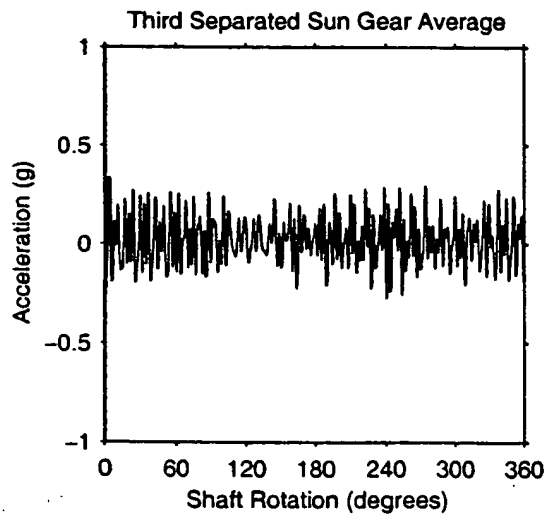


FIG. 4.2c

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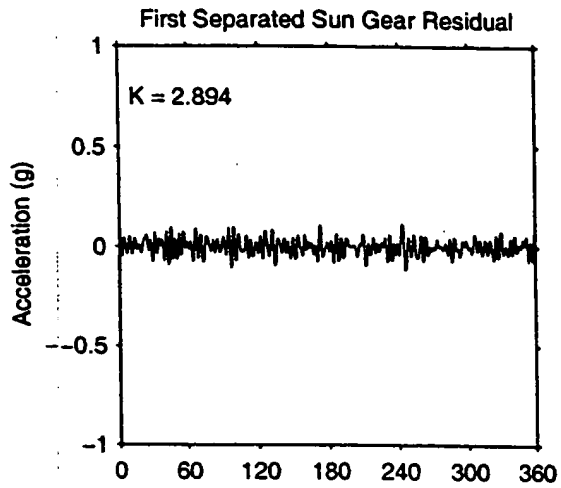


FIG. 4.2d

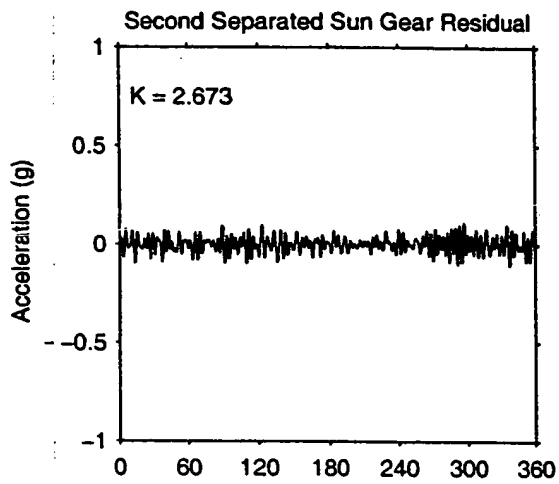


FIG. 4.2e

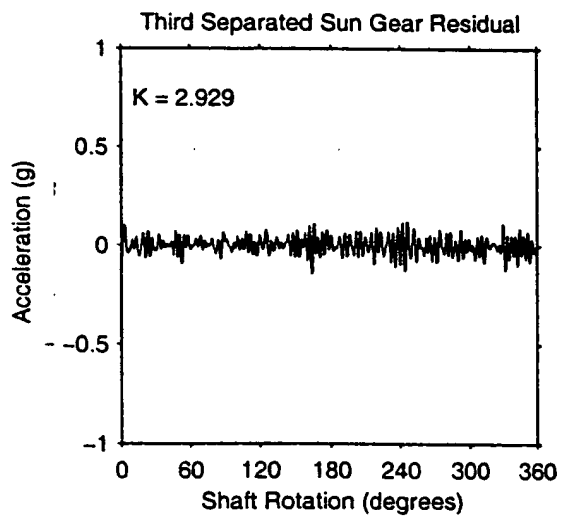


FIG. 4.2f

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Sun gear separations ($window = w_{sum}(t)$) – no fault.

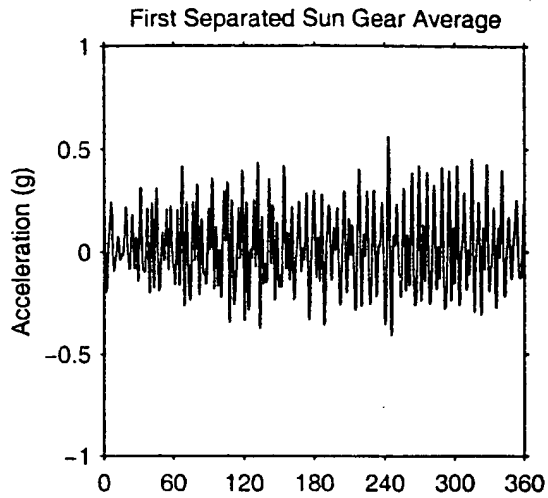


FIG. 4.3a

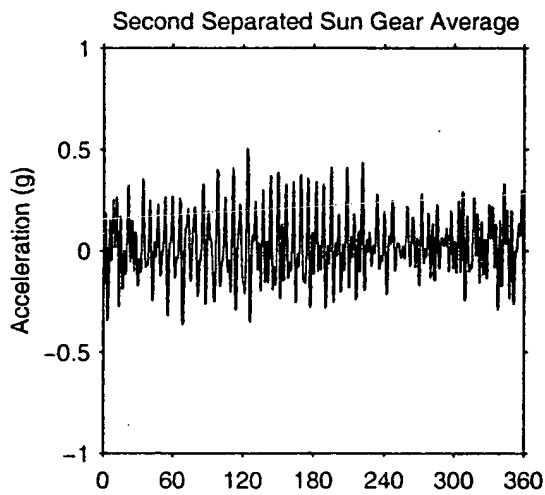


FIG. 4.3b

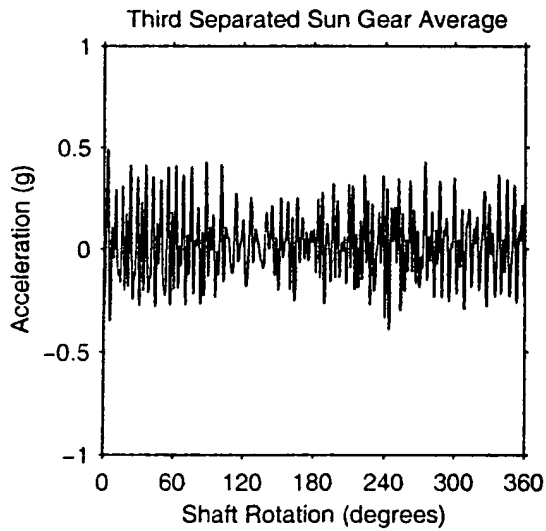


FIG. 4.3c

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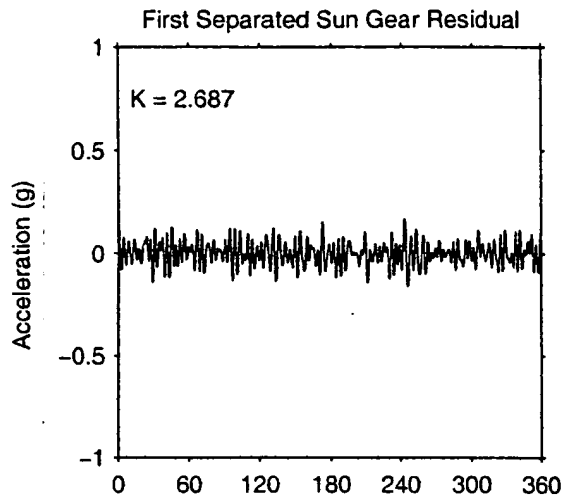


FIG. 4.3d

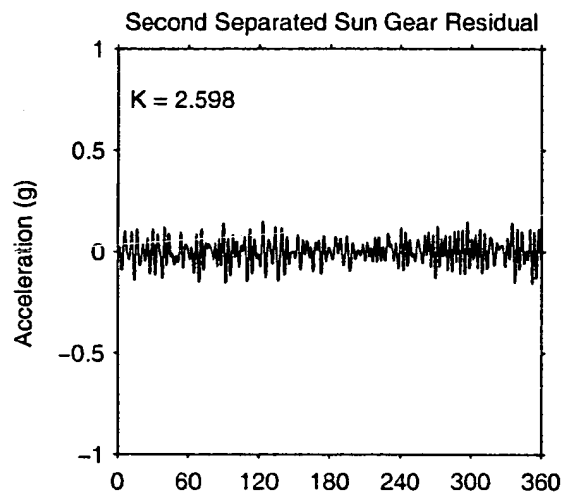


FIG. 4.3e

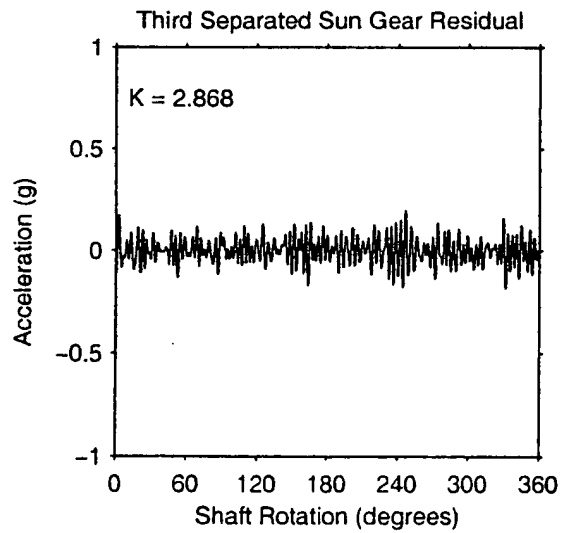


FIG. 4.3f

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Ordinary, combined & modified sun gear averages (window = $w_{power}(t)$) - no fault.

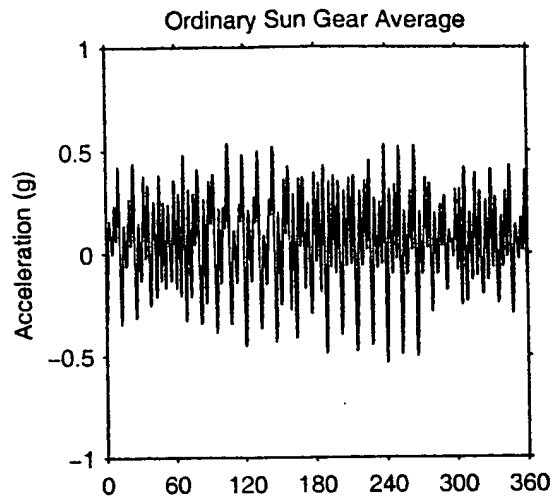


FIG. 4.4a

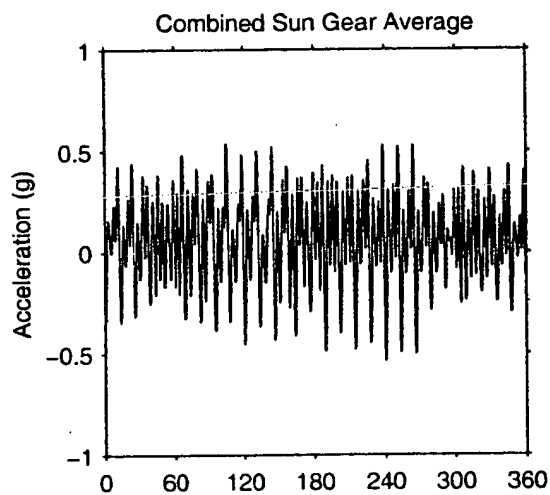


FIG. 4.4b

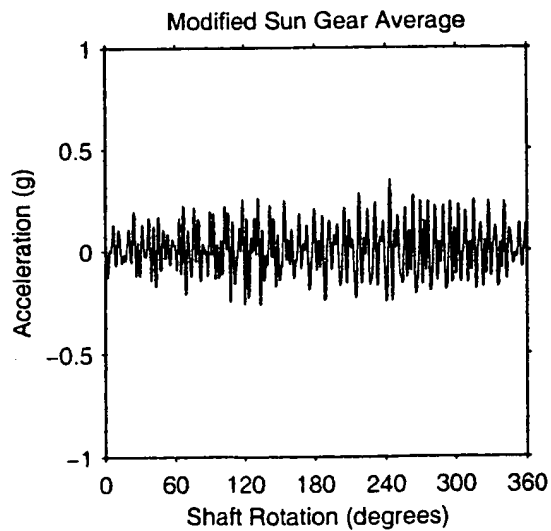


FIG. 4.4c

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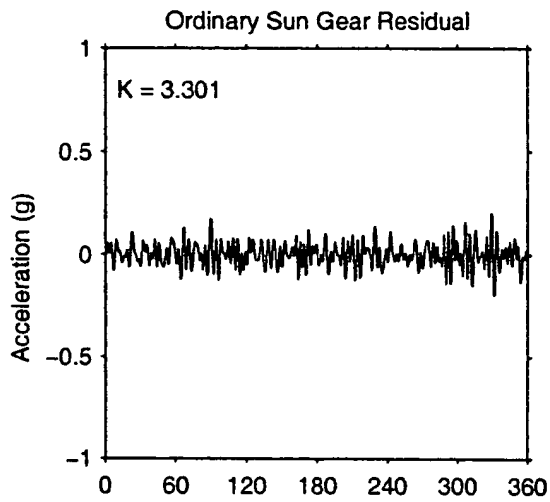


FIG. 4.4d

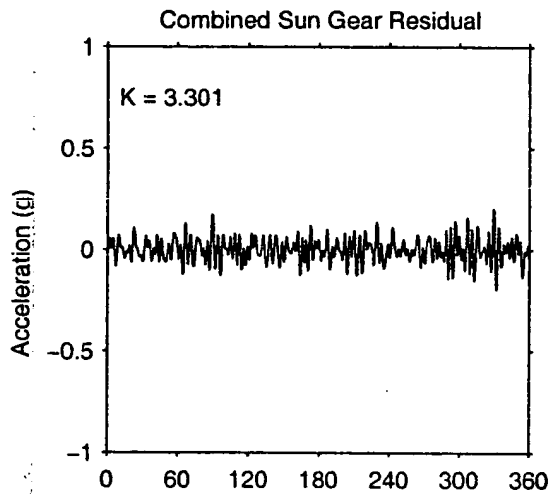


FIG. 4.4e

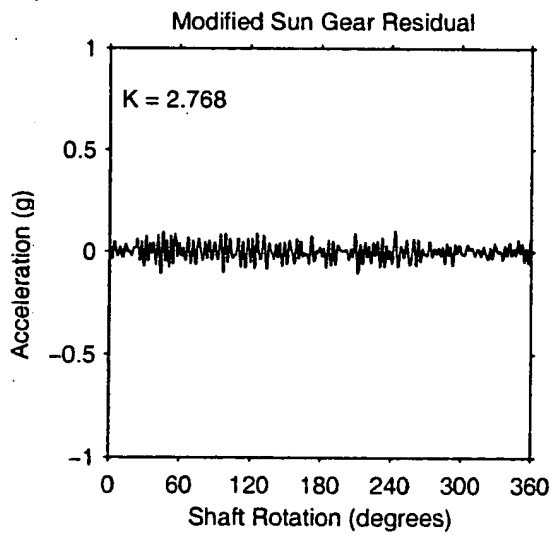


FIG. 4.4f

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Ordinary, combined & modified sun gear averages ($window = w_{sum}(t)$) – no fault.

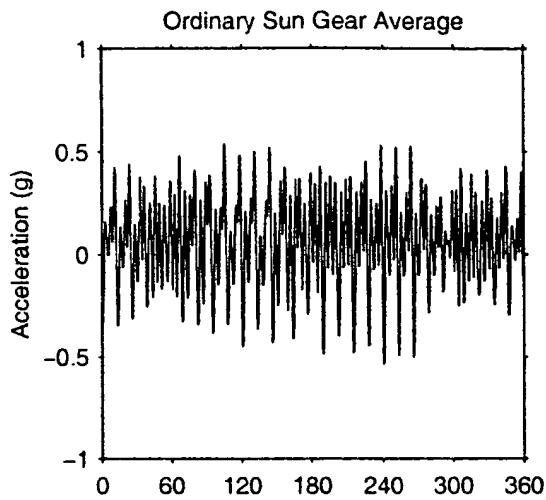


FIG. 4.5a

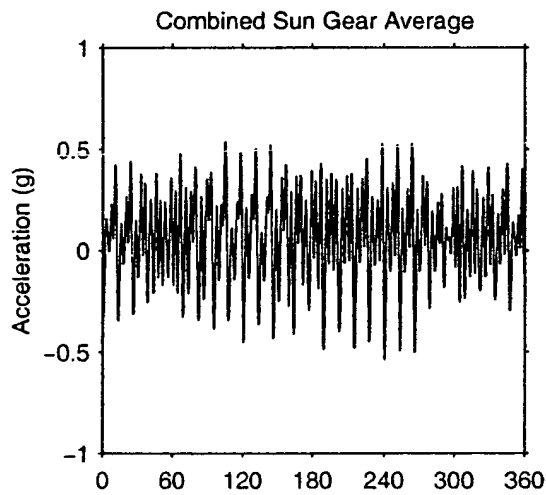


FIG. 4.5b

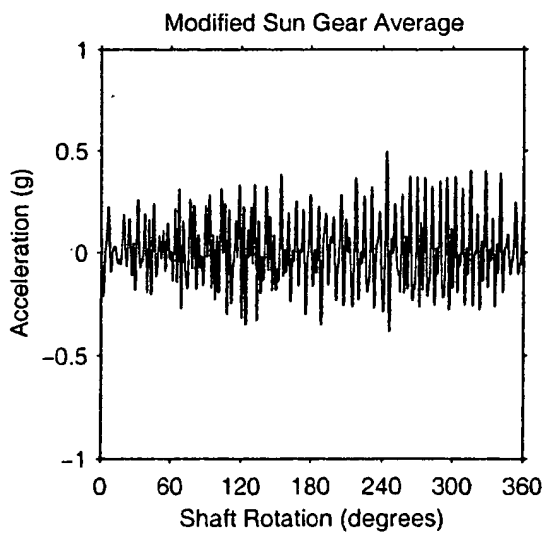


FIG. 4.5c

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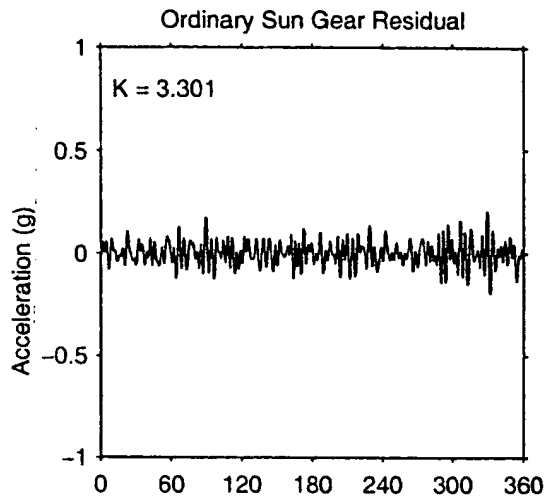


FIG. 4.5d

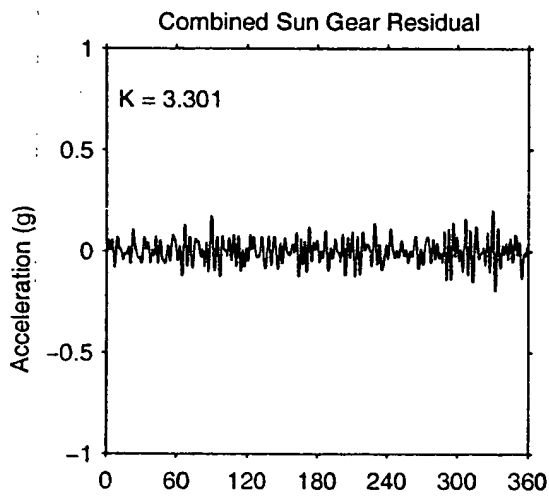


FIG. 4.5e

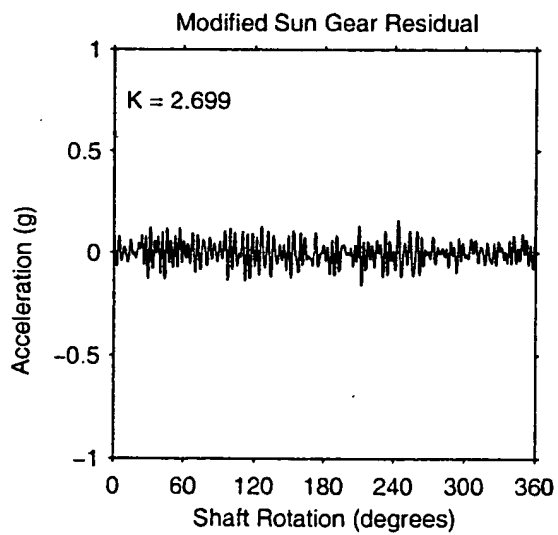


FIG. 4.5f

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Sun gear separations ($window = w_{power}(t)$) - fault.

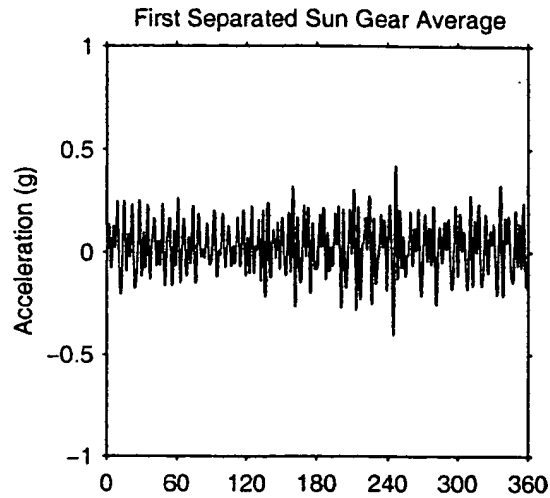


FIG. 4.6a

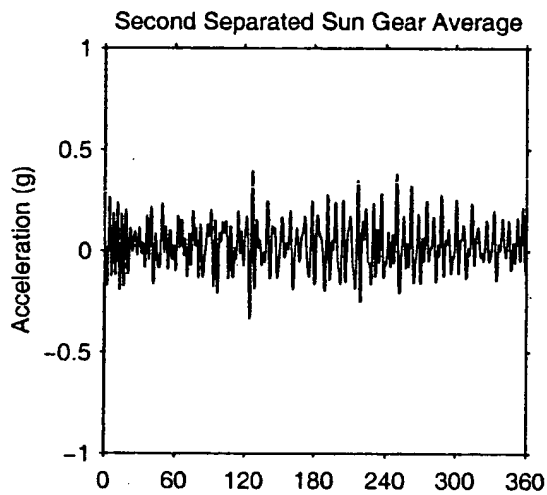


FIG. 4.6b

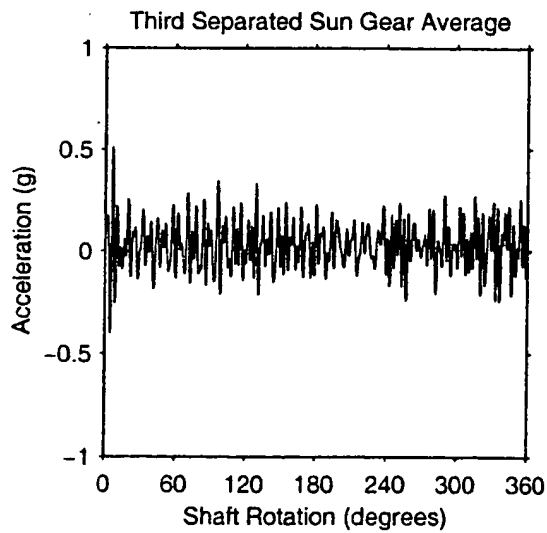


FIG. 4.6c

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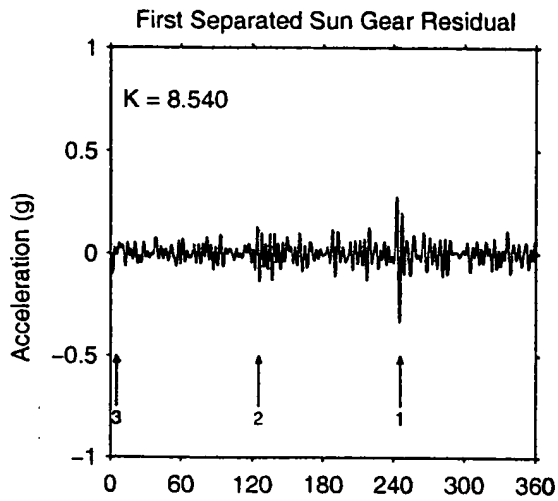


FIG. 4.6d

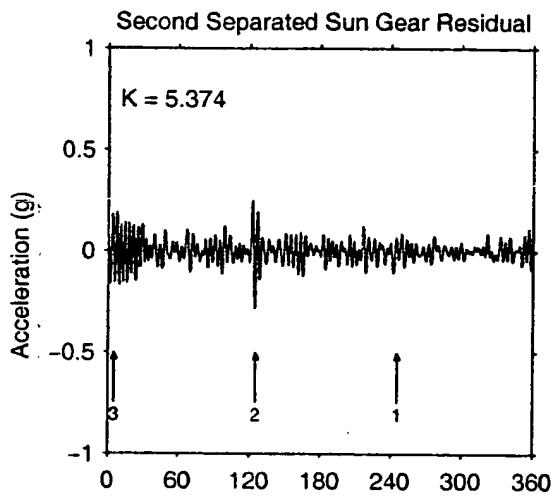


FIG. 4.6e

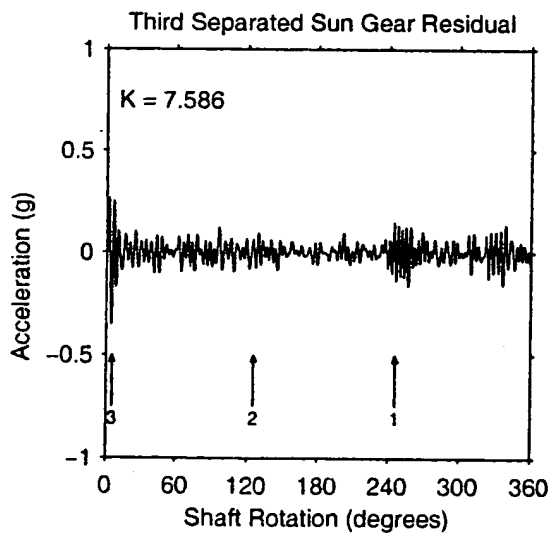


FIG. 4.6f

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Sun gear separations ($window = w_{sum}(t)$) - fault.

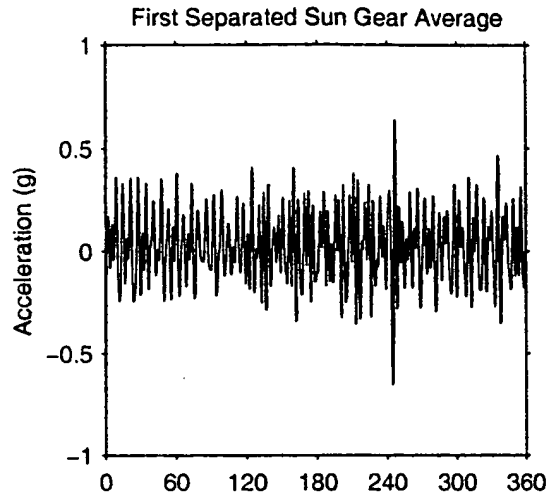


FIG. 4.7a

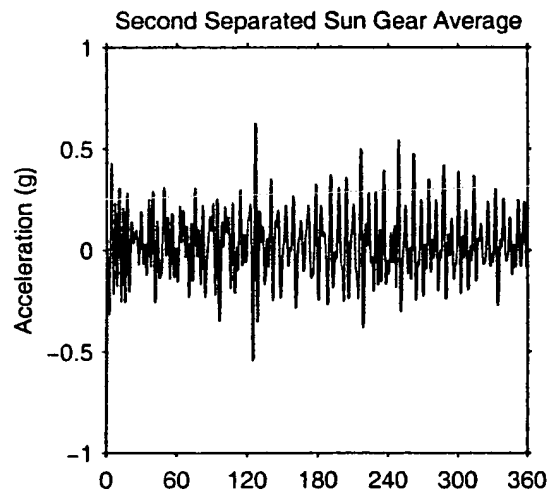


FIG. 4.7b

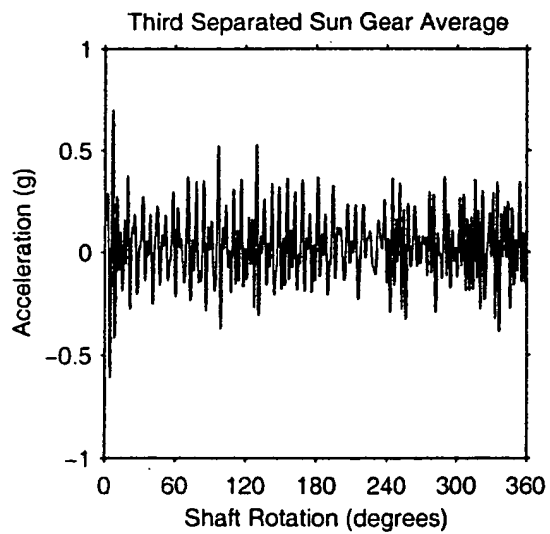


FIG. 4.7c

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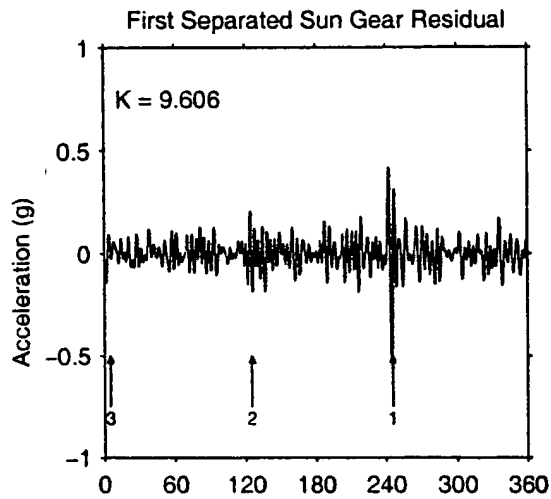


FIG. 4.7d

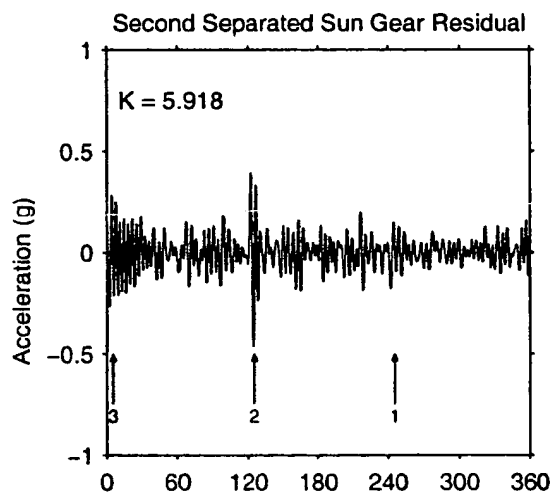


FIG. 4.7e

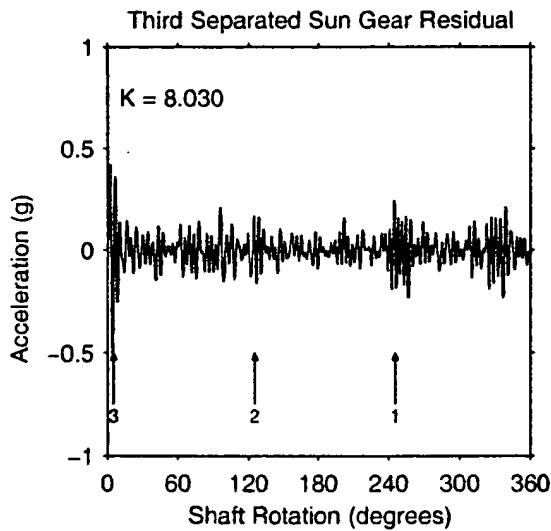


FIG. 4.7f

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Ordinary, combined & modified sun gear averages (window = $w_{power}(t)$) - fault.

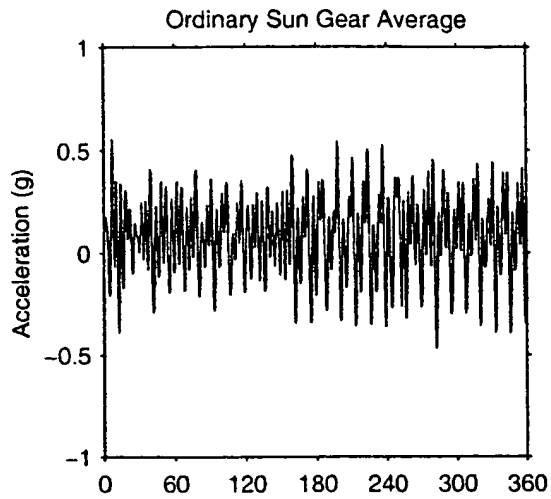


FIG. 4.8a

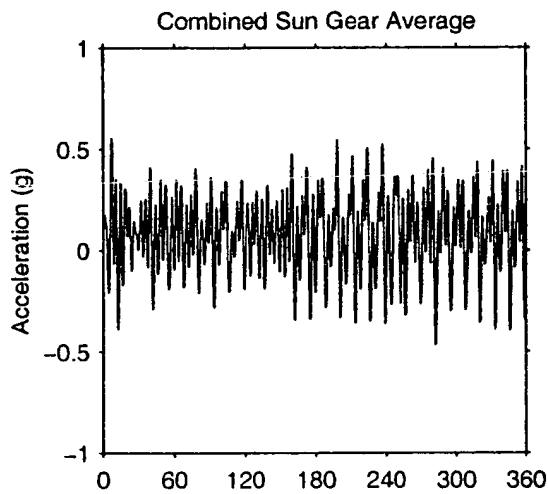


FIG. 4.8b

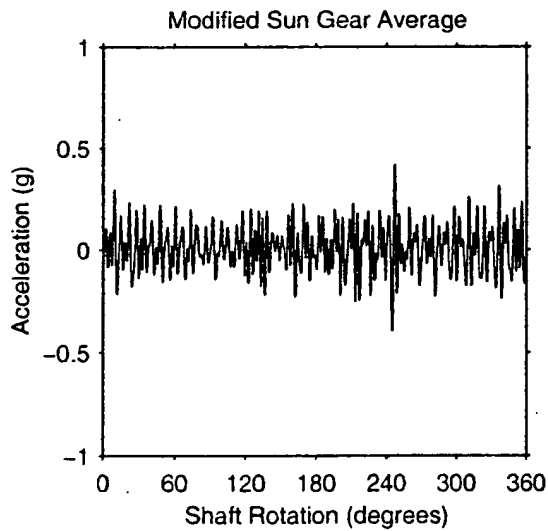


FIG. 4.8c

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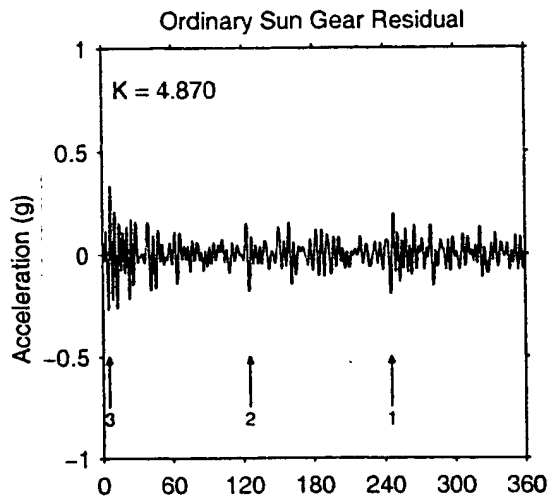


FIG. 4.8d

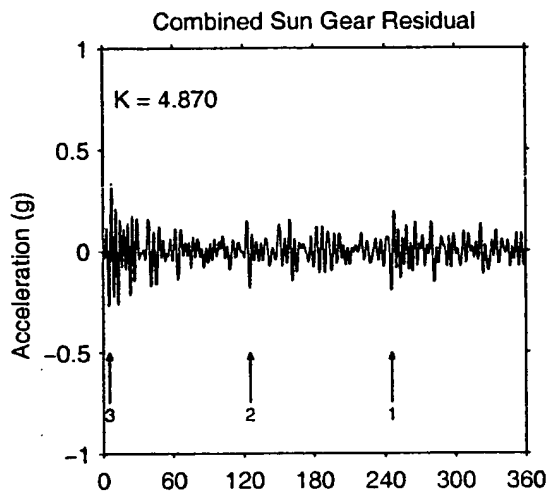


FIG. 4.8e

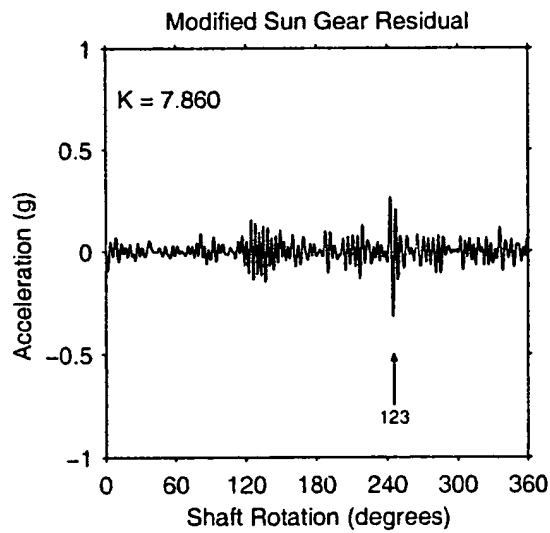


FIG. 4.8f

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Ordinary, combined & modified sun gear averages ($window = w_{sum}(t)$) - fault.

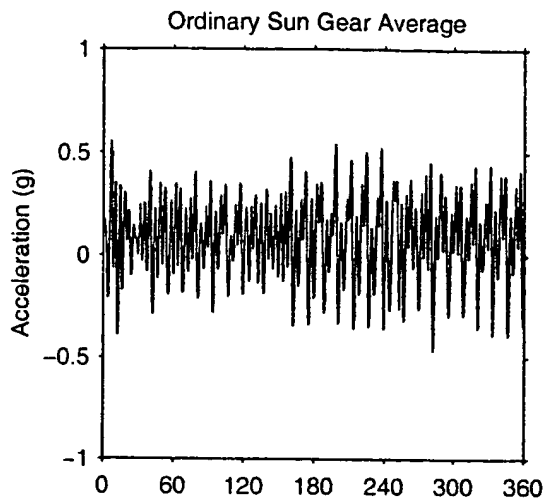


FIG. 4.9a

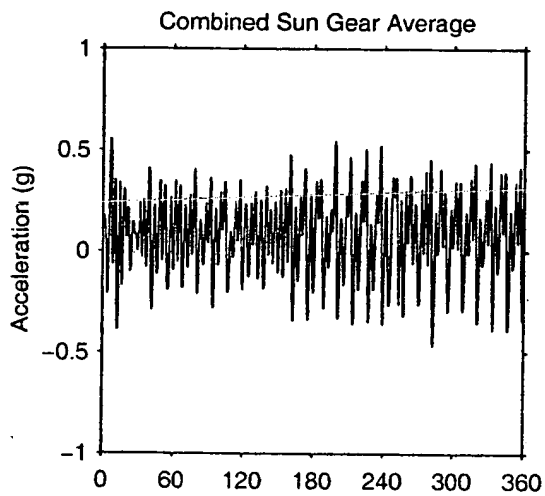


FIG. 4.9b

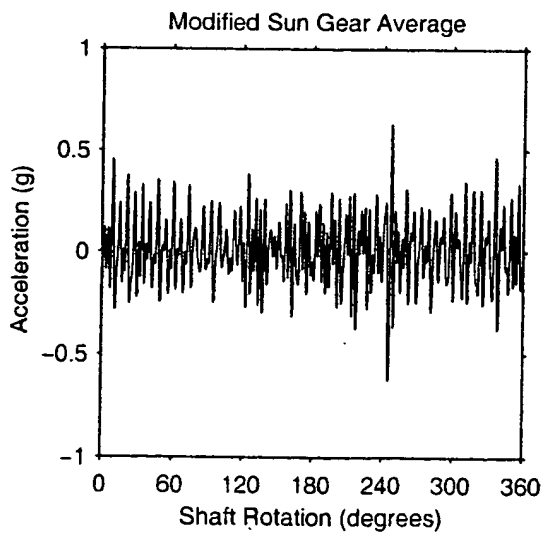


FIG. 4.9c

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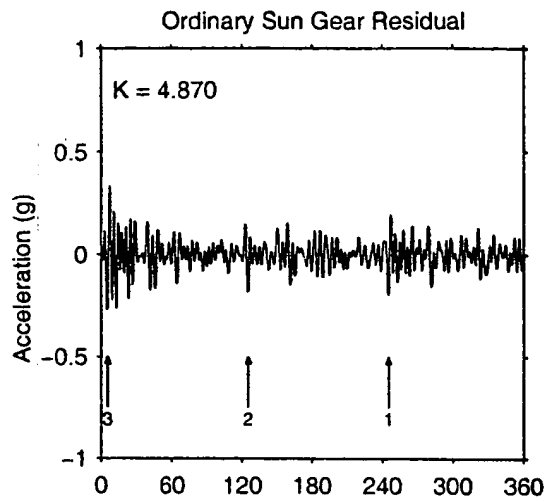


FIG. 4.9d

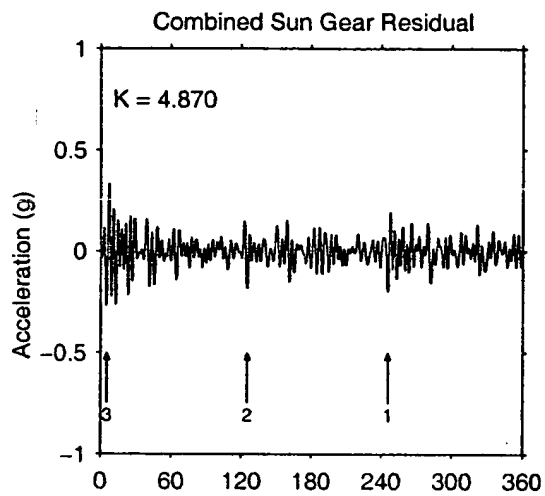


FIG. 4.9e

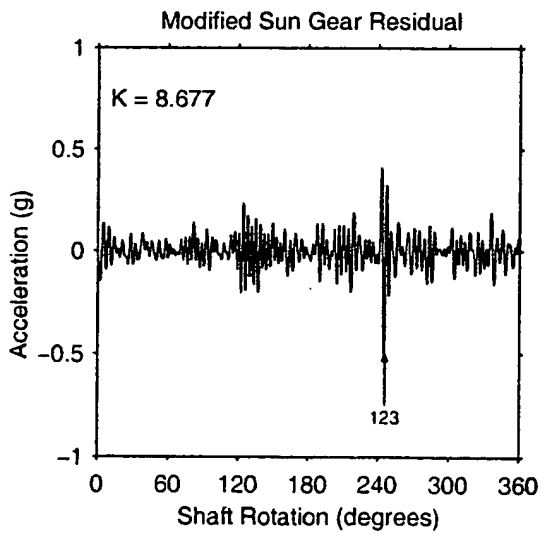
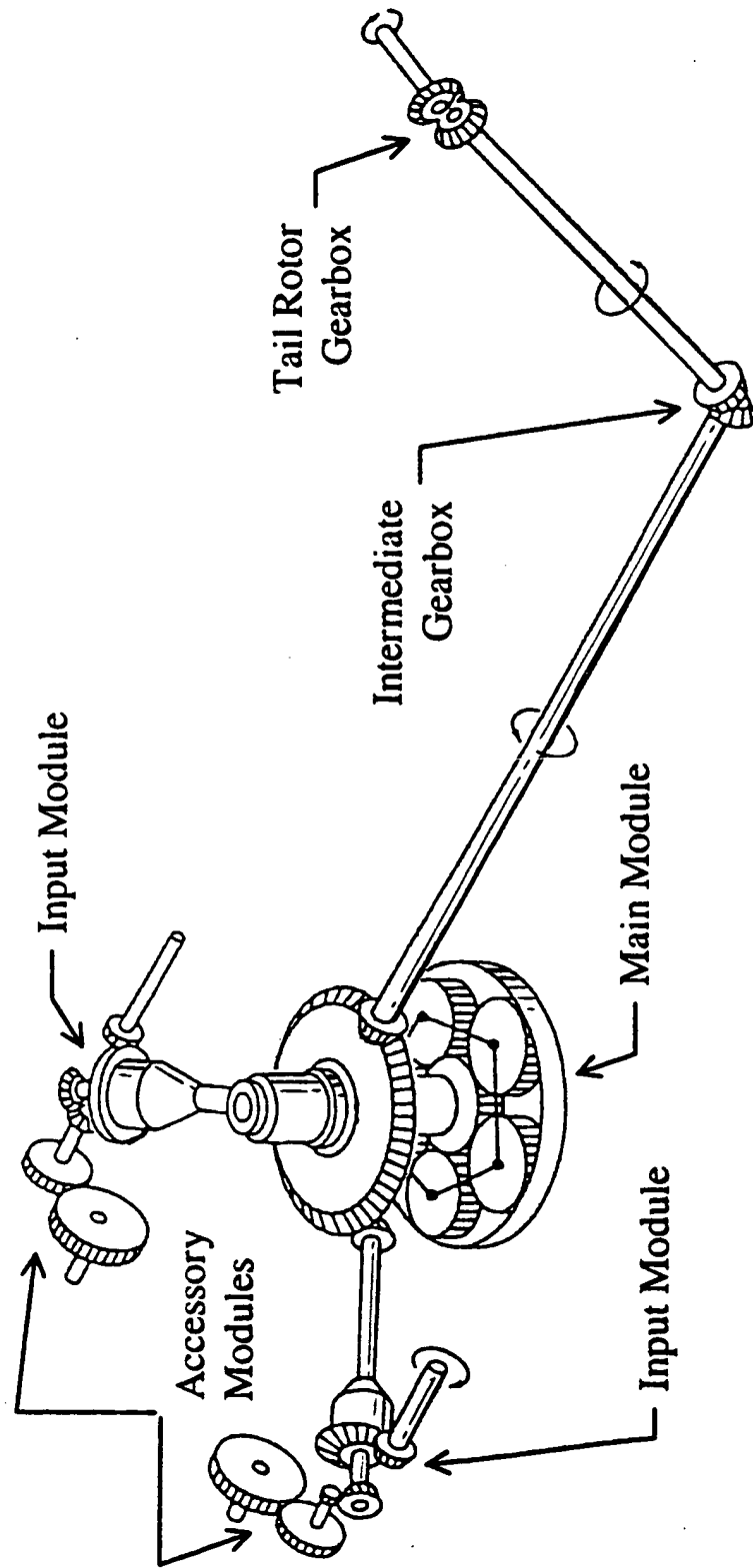


FIG. 4.9f

FIG. 9.10



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FIG. 4.11

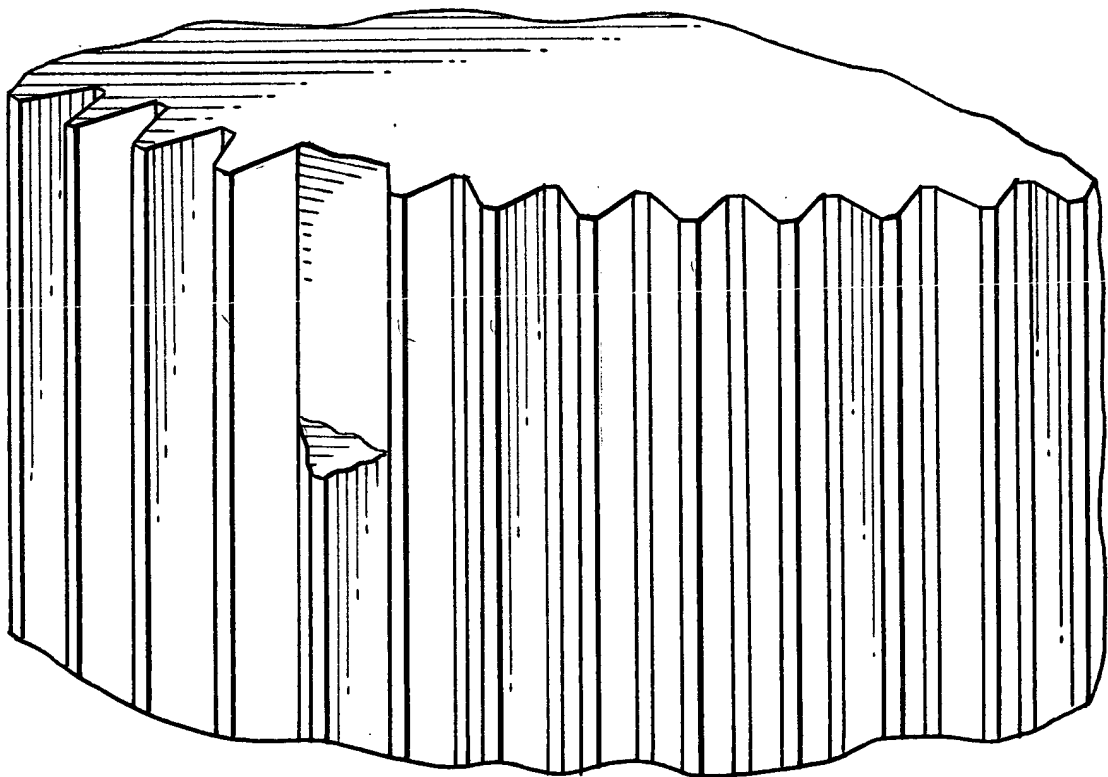


FIG. 4.12

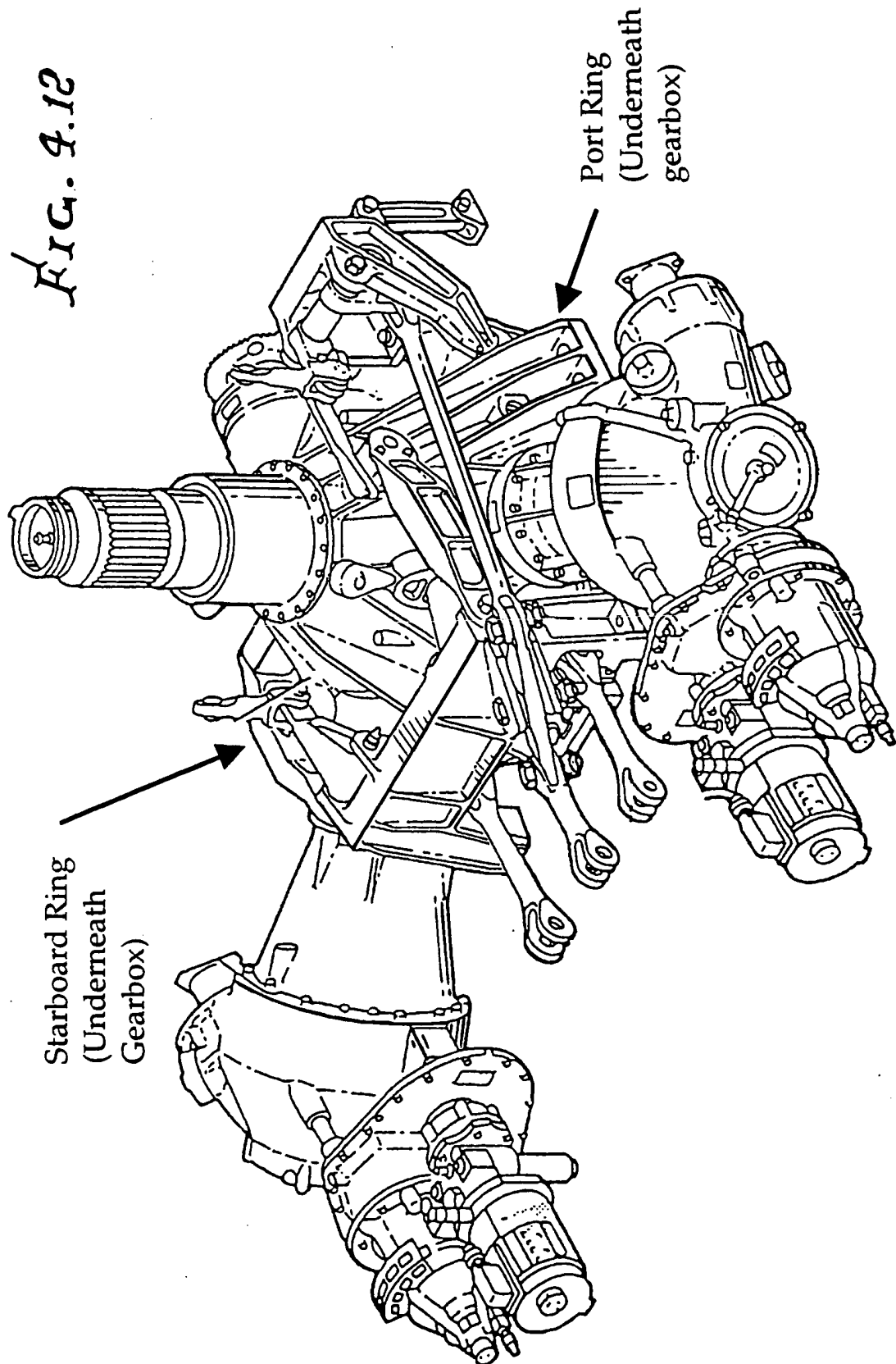


FIG. 4.13a

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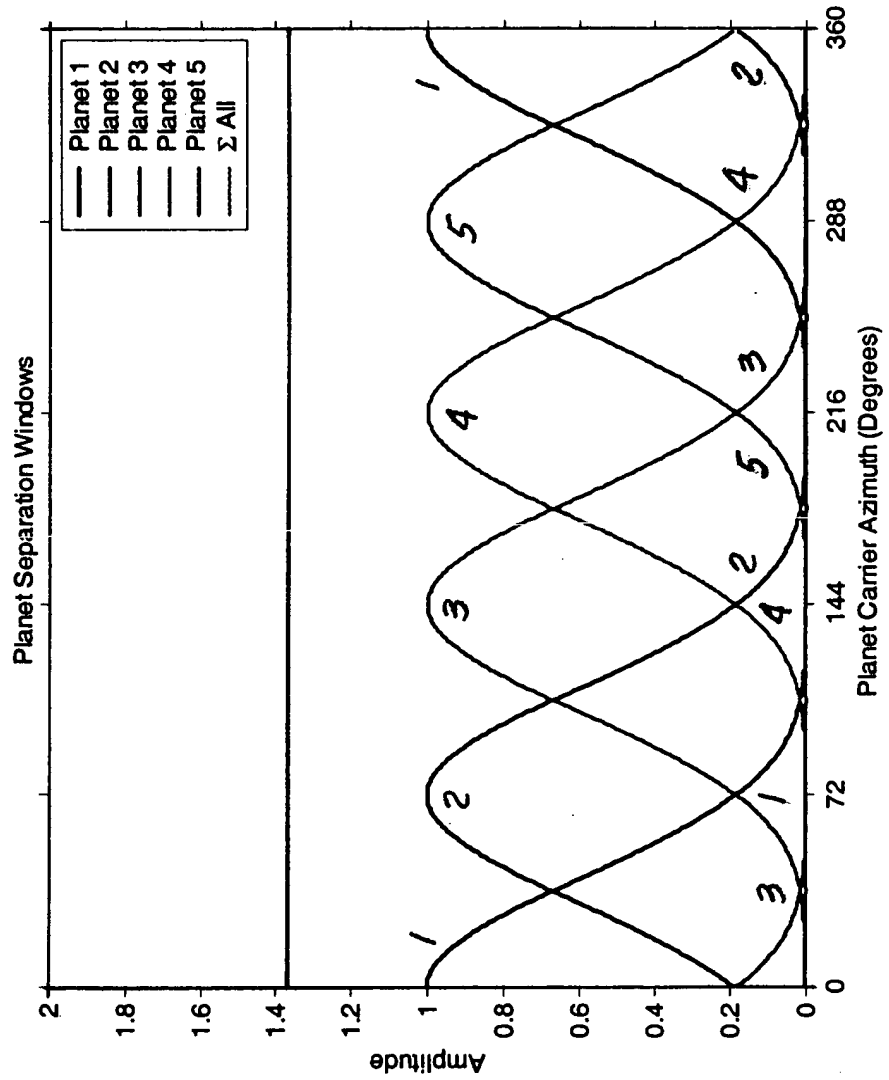


FIG. 9. 13b

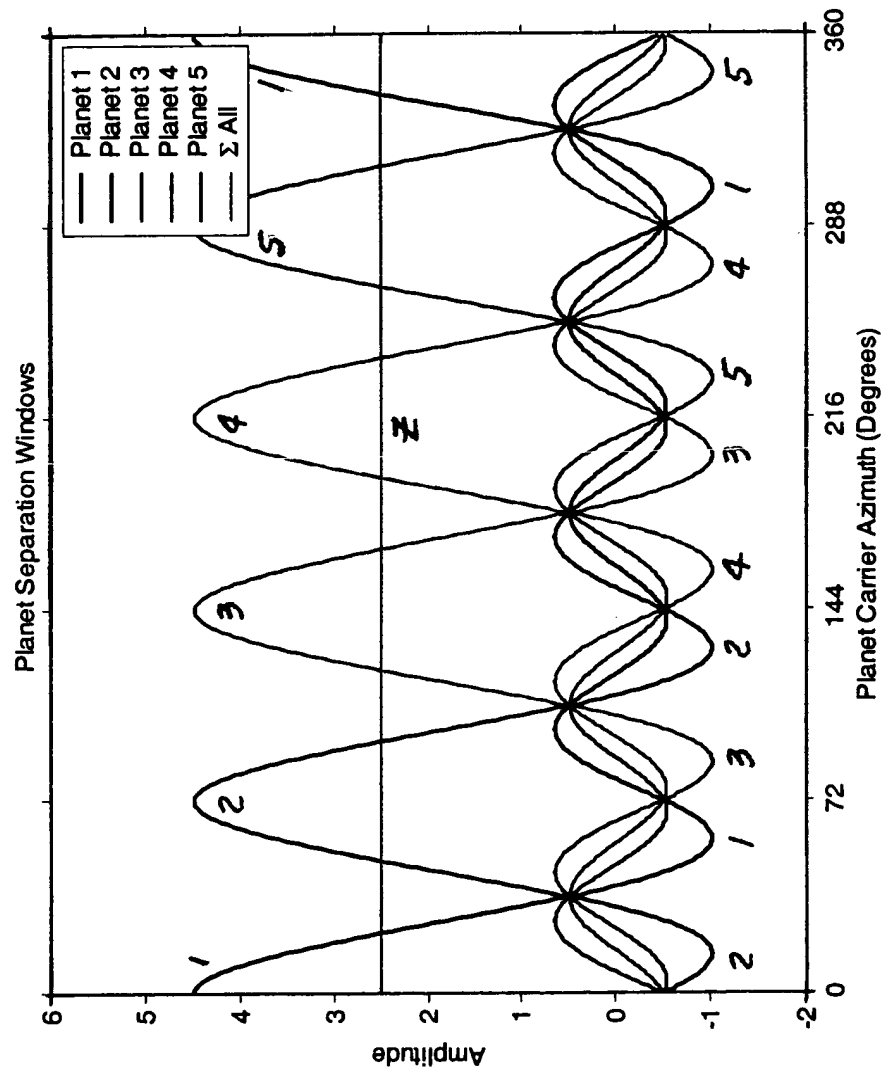


FIG. 4.14a

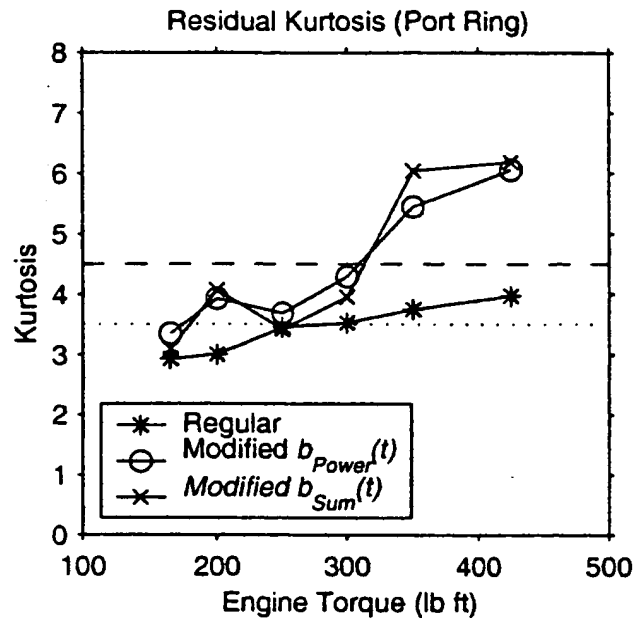
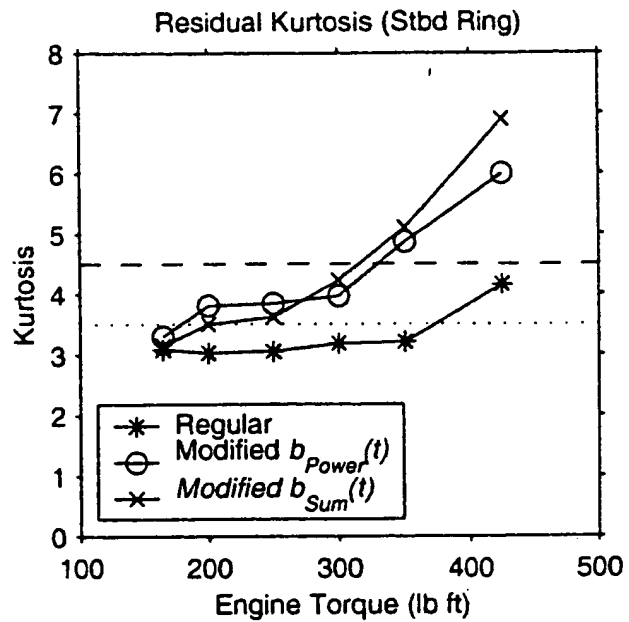


FIG. 4.14b



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Spectra of sun gear averages at 350 lb ft torque showing resonance band.

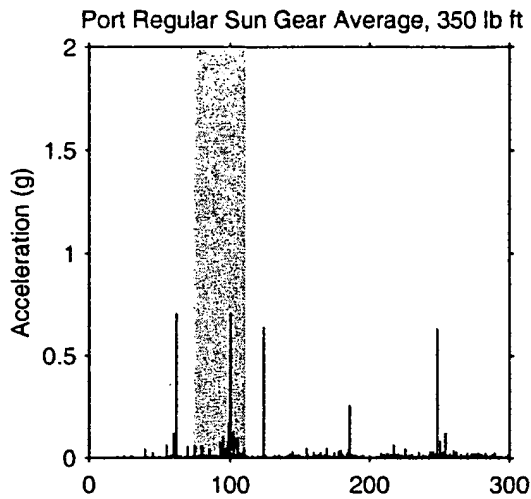


FIG. 4.15a

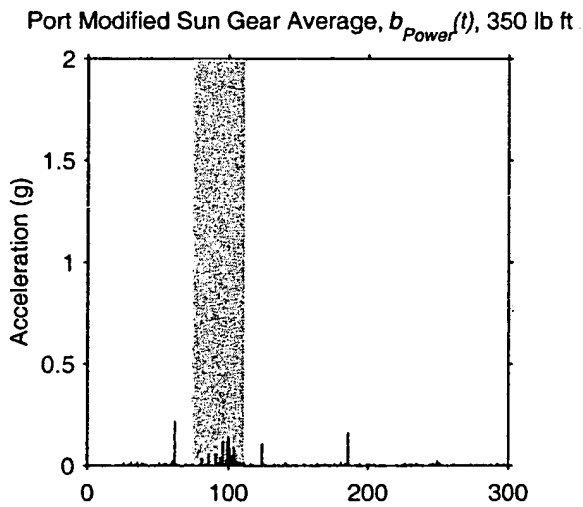


FIG. 4.15b

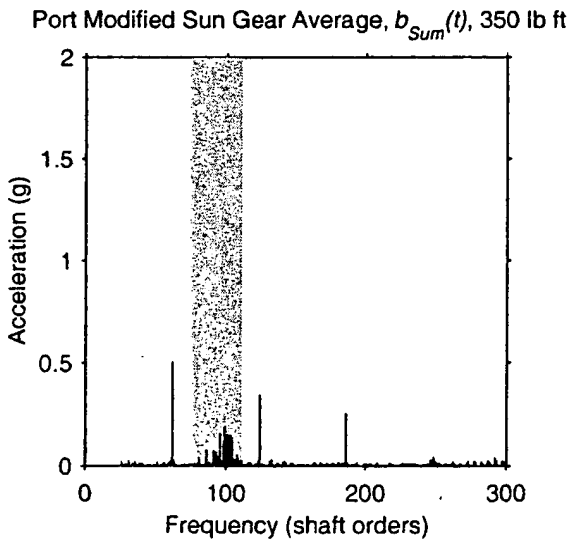


FIG. 4.15c

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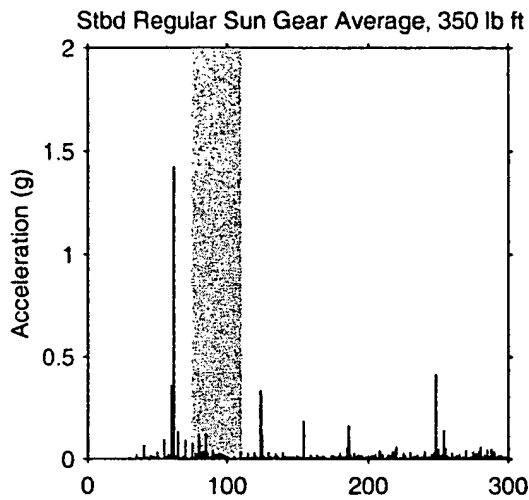


FIG. 4.15d

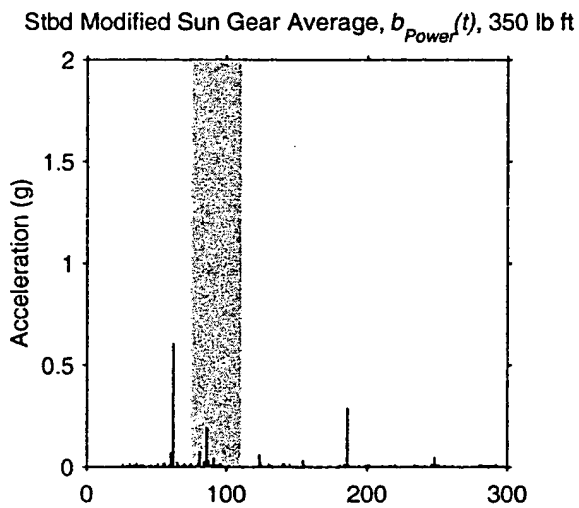


FIG. 4.15e

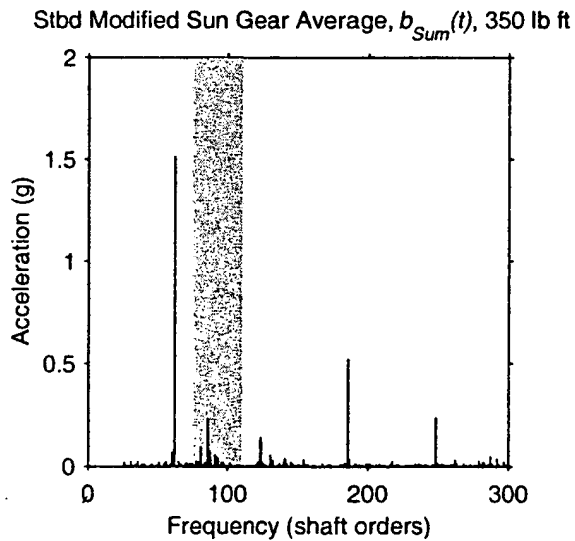


FIG. 4.15f

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Sun gear averages, 425 lb ft torque, port ring accelerometer.

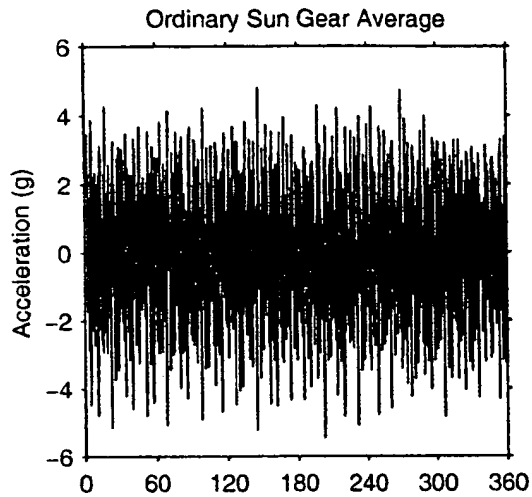


FIG. 4.16a

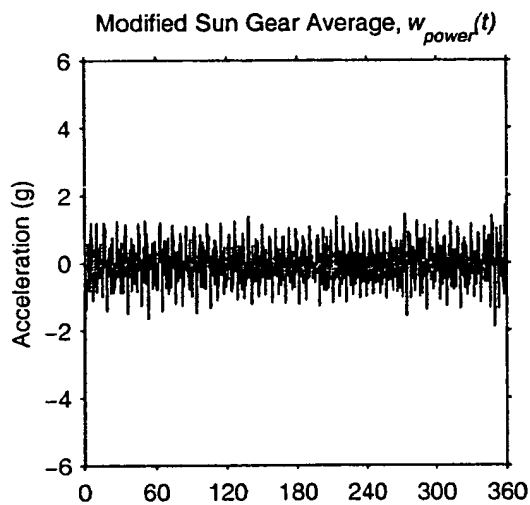


FIG. 4.16b

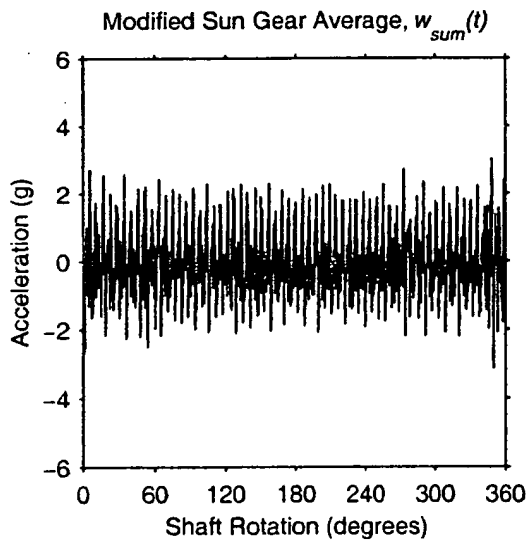


FIG. 4.16c

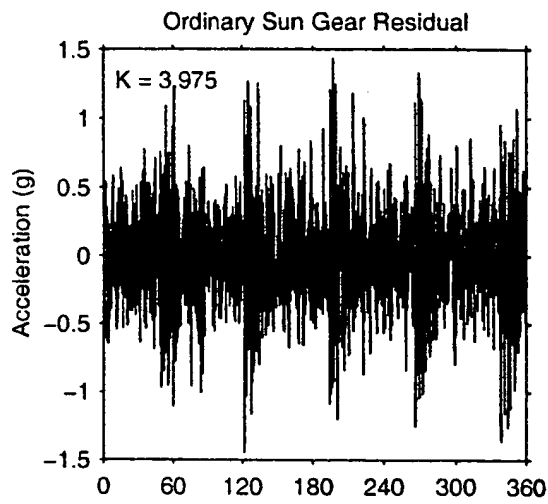


FIG. 4.16d

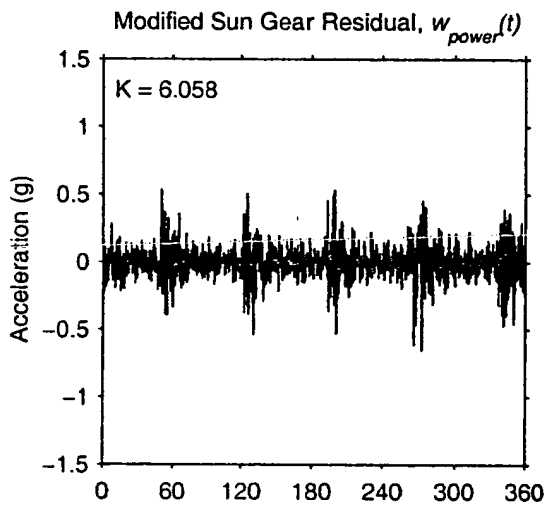


FIG. 4.16e

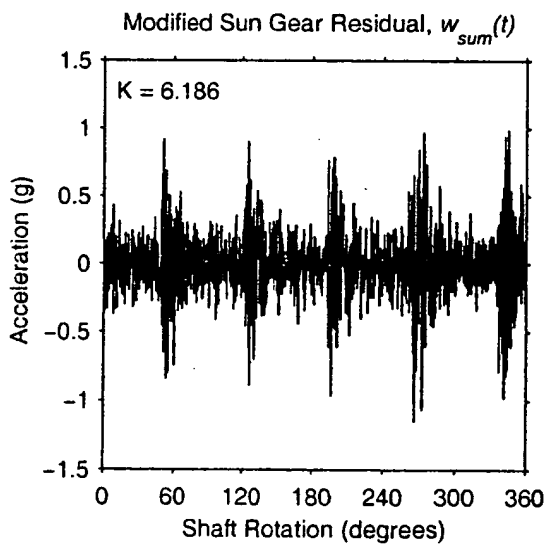


FIG. 4.16f

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Sun gear averages, 425 lb ft torque, starboard ring accelerometer.

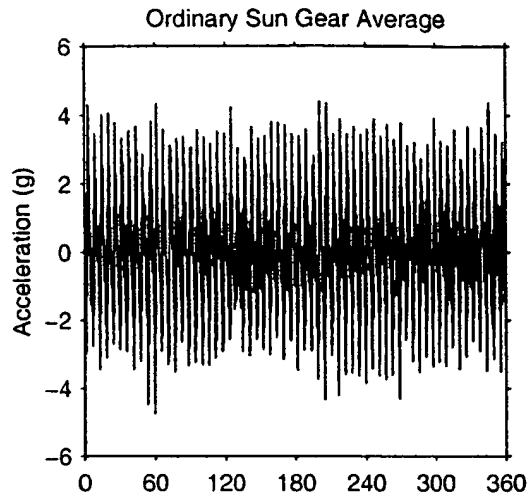


FIG. 4.17a

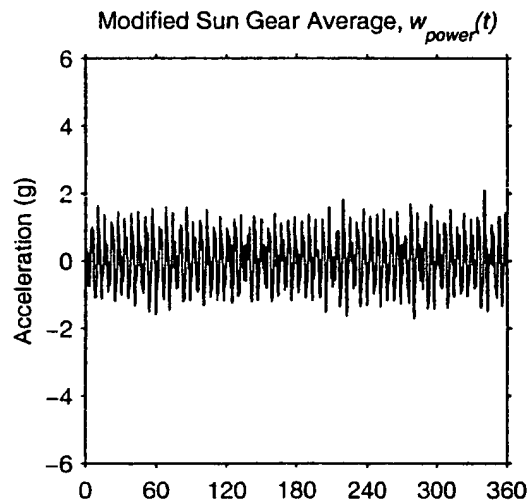


FIG. 4.17b

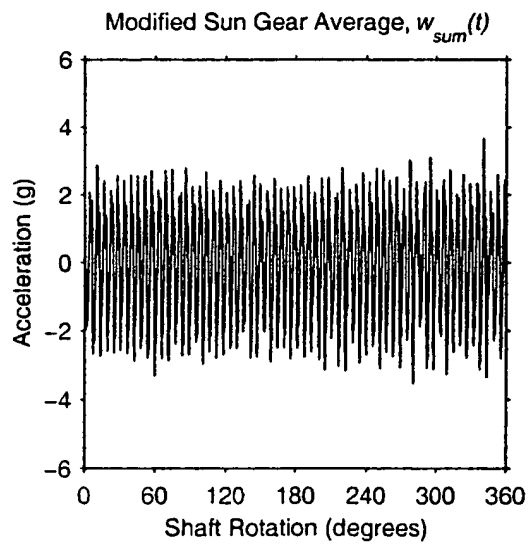


FIG. 4.17c

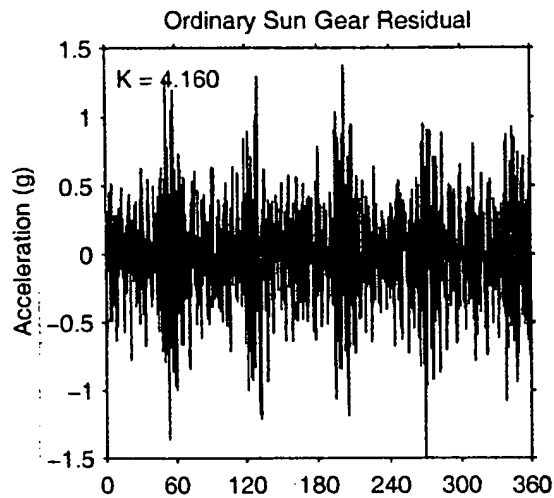


FIG. 4.17d

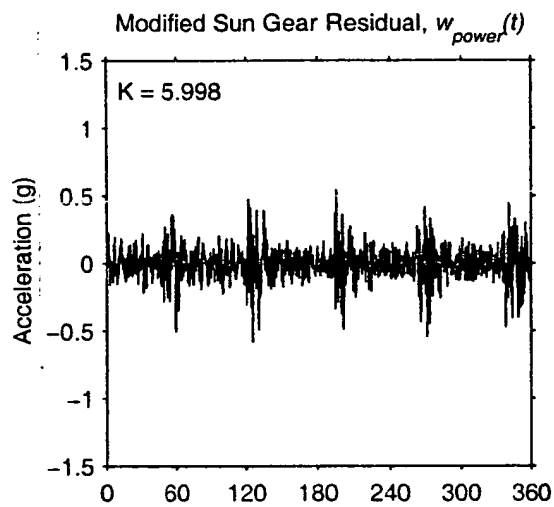


FIG 4.17e

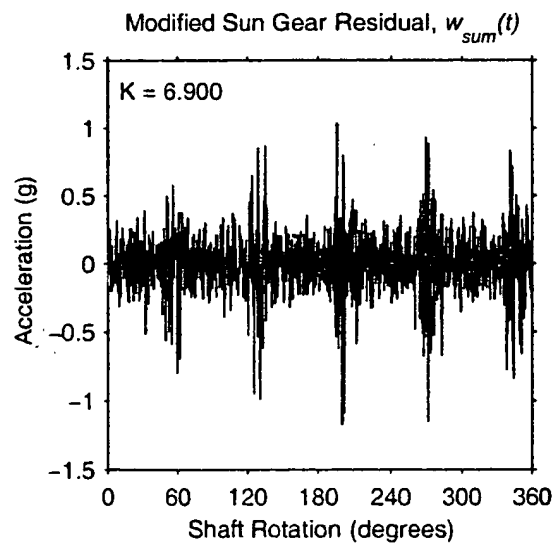


FIG. 4.17f

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Sun gear averages. 350 lb ft torque. port ring accelerometer.

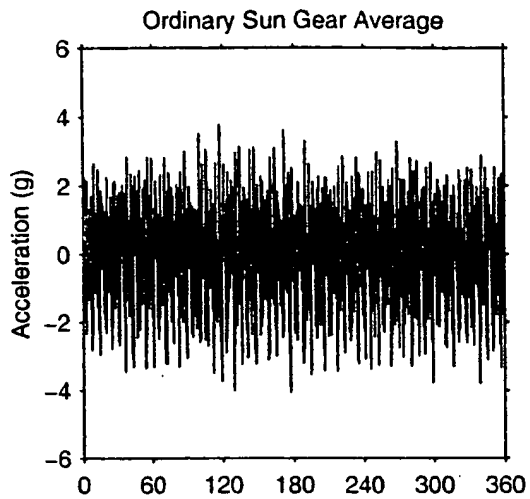


FIG. 4.18a

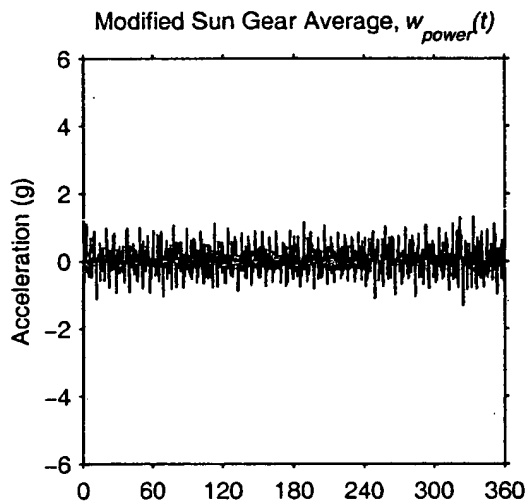


FIG. 4.18b

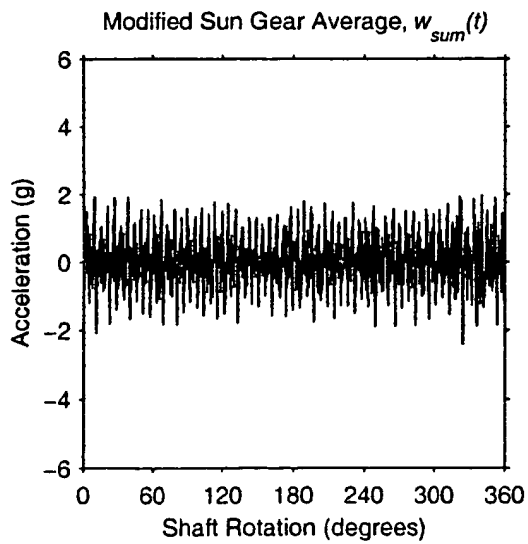


FIG. 4.18c

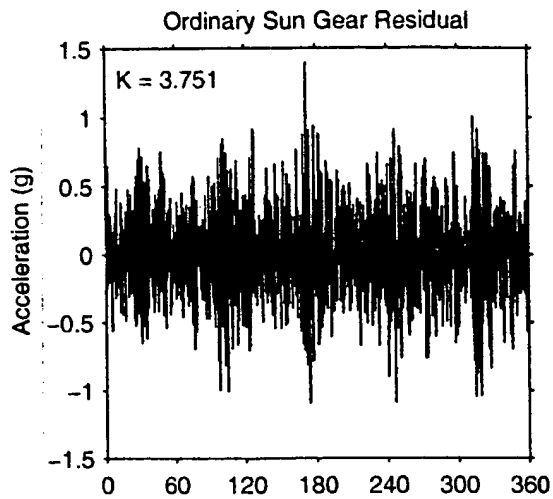


FIG. 4.18d

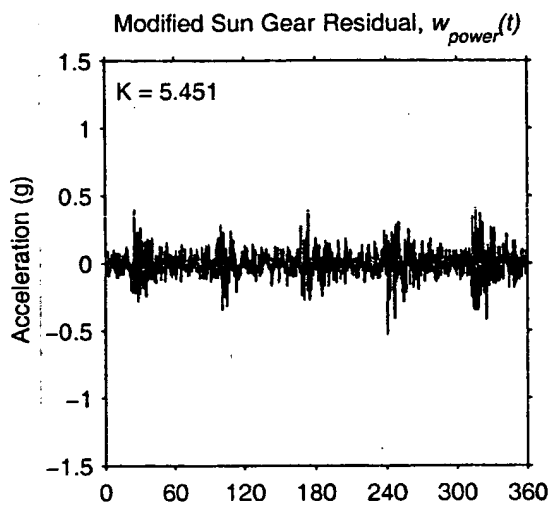


FIG. 4.18e

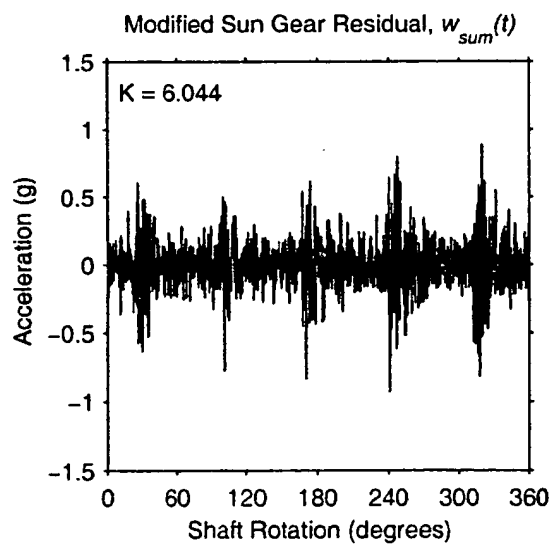


FIG. 4.18f

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Sun gear averages, 350 lb ft torque, starboard ring accelerometer.

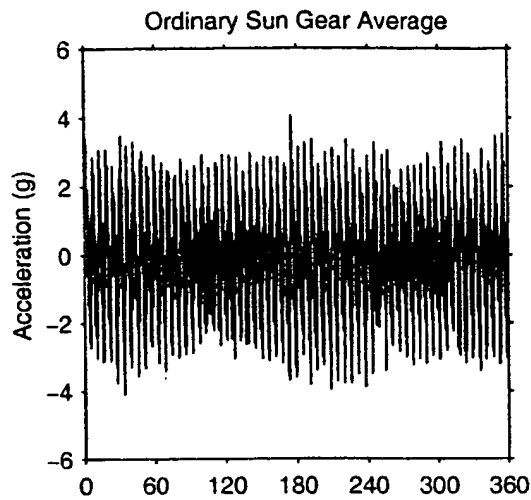


FIG. 4.19a

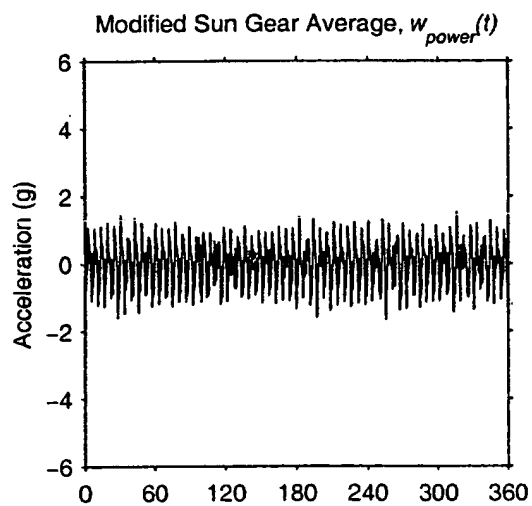


FIG. 4.19b

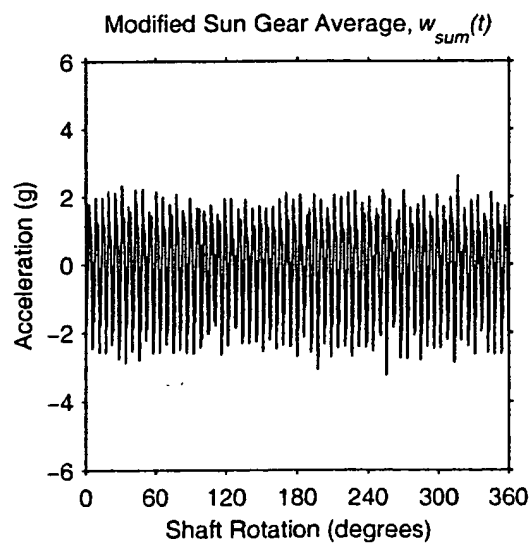


FIG. 4.19c

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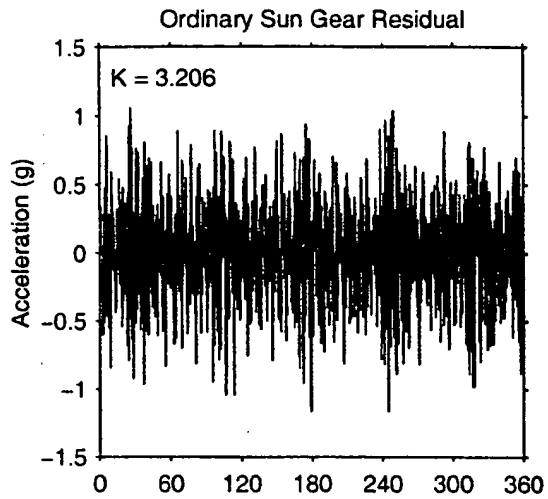


FIG. 4.19d

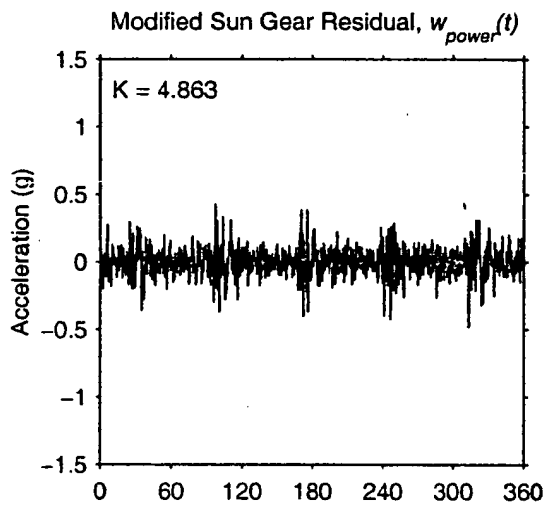


FIG. 4.19e

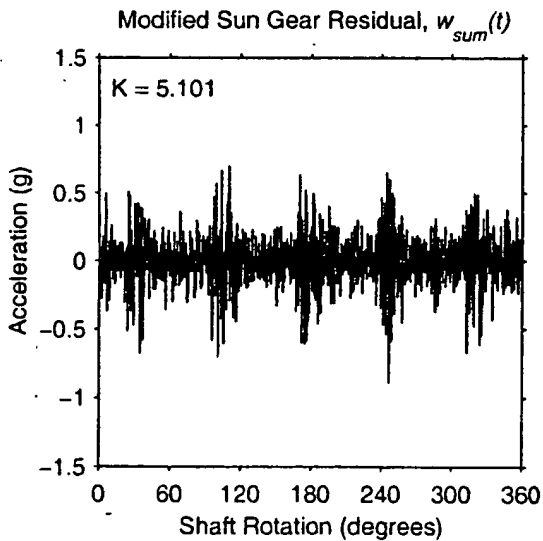


FIG. 4.19f

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Sun gear averages, 300 lb ft torque, port ring accelerometer.

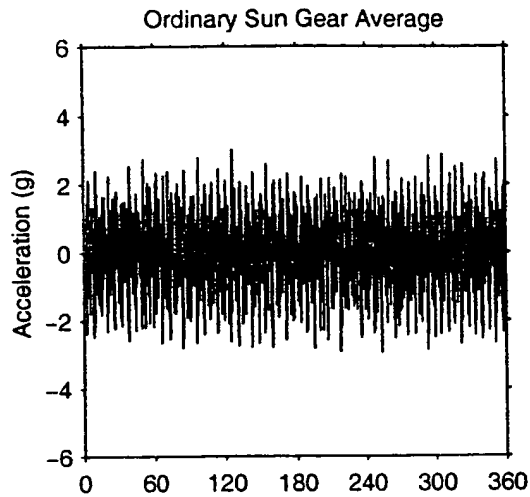


FIG. 4.20a

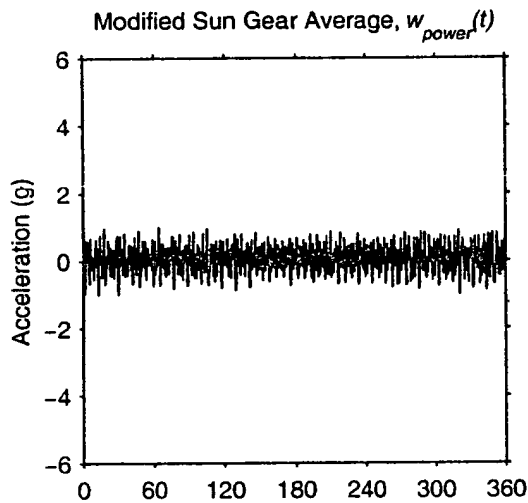


FIG. 4.20b

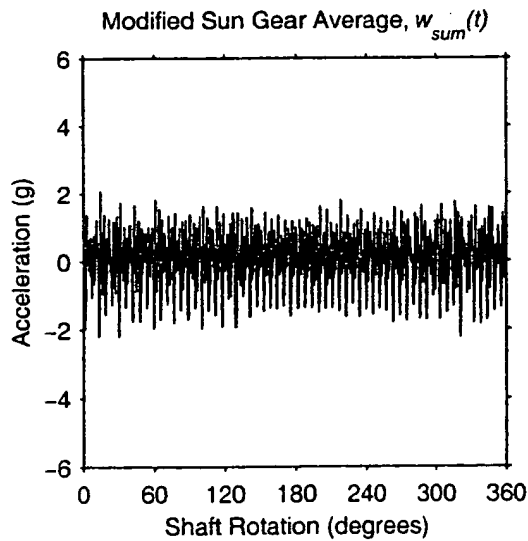


FIG. 4.20c

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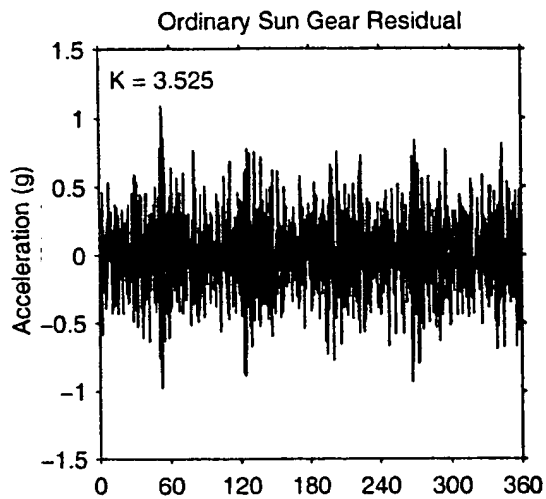


FIG. 4.20d

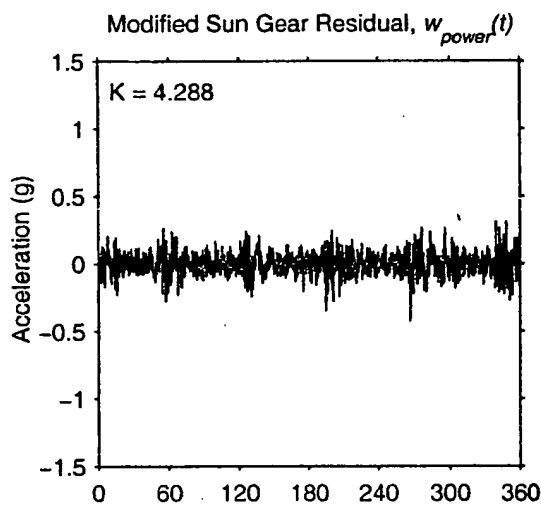


FIG. 4.20e

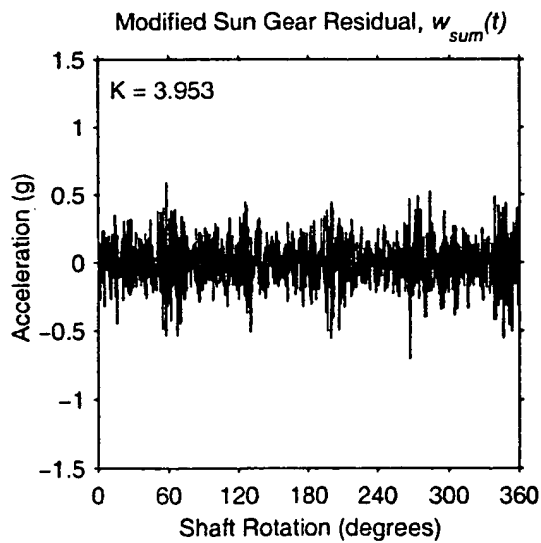


FIG. 4.20f

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Sun gear averages, 300 lb ft torque, starboard ring accelerometer.

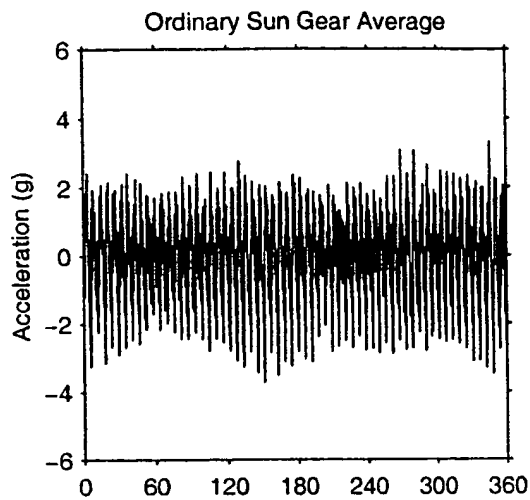


FIG. 4.21a

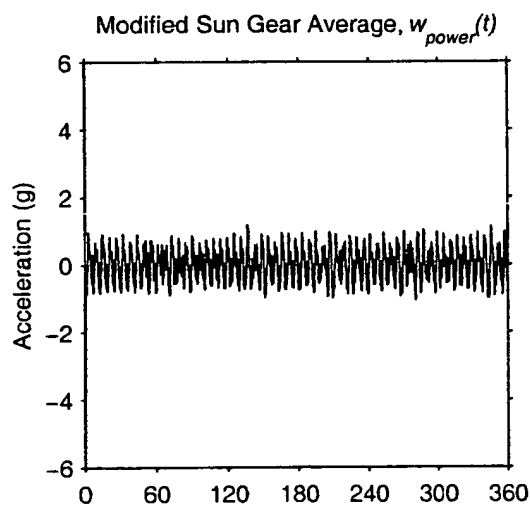


FIG. 4.21b

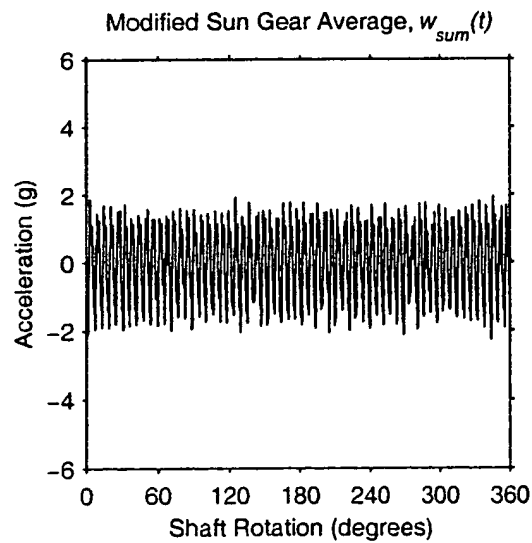


FIG. 4.21c

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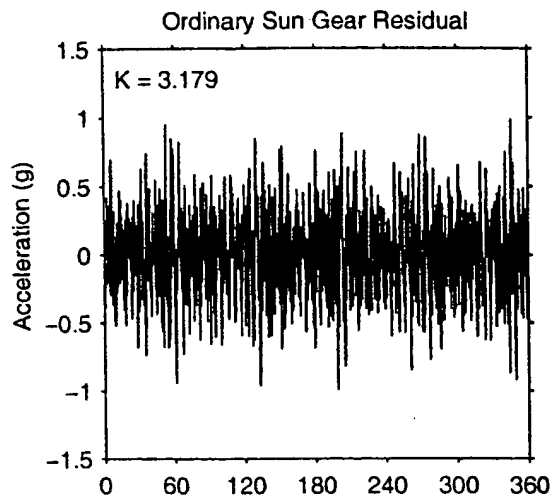


FIG. 4.21d

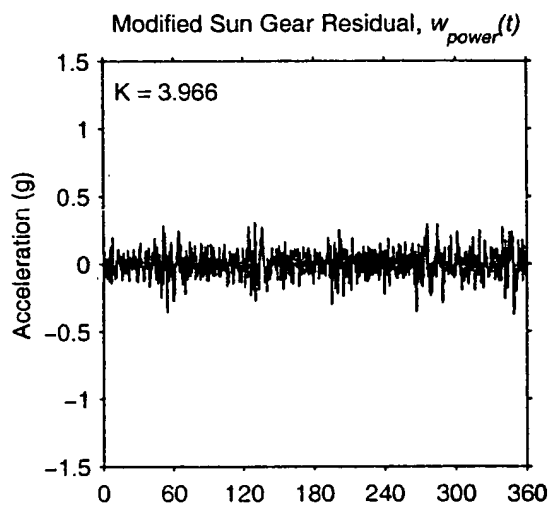


FIG. 4.21e

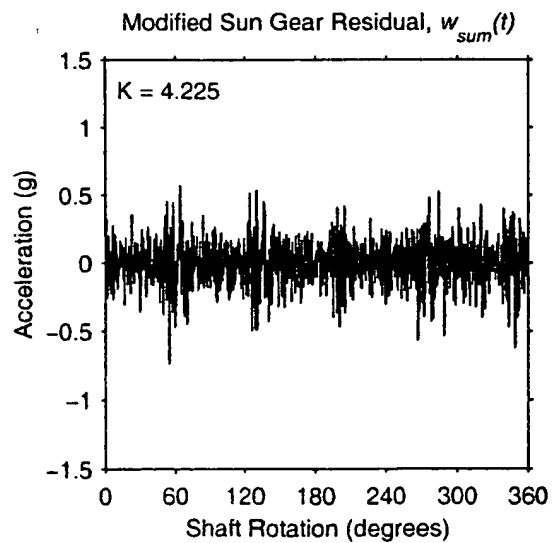


FIG. 4.21f

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Sun gear averages, 250 lb ft torque, port ring accelerometer.

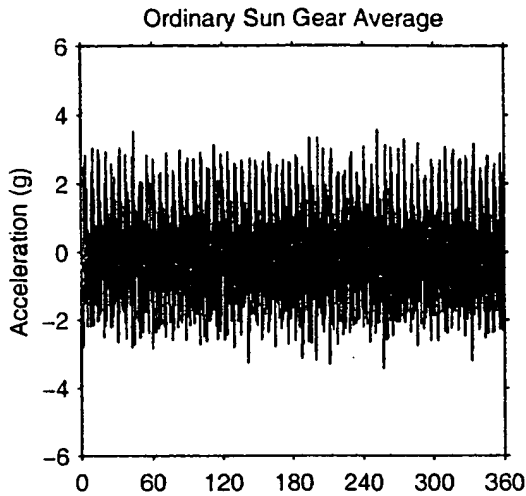


FIG. 4.22a

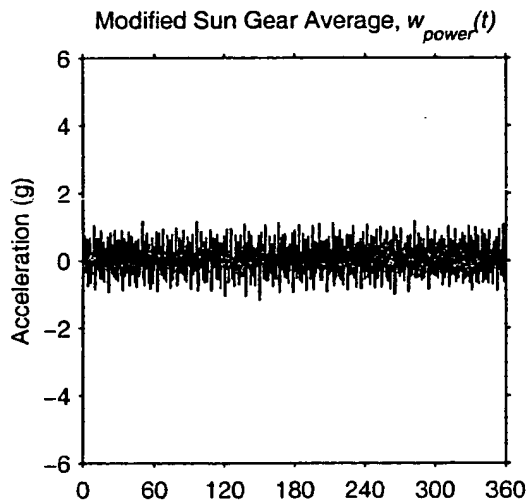


FIG. 4.22b

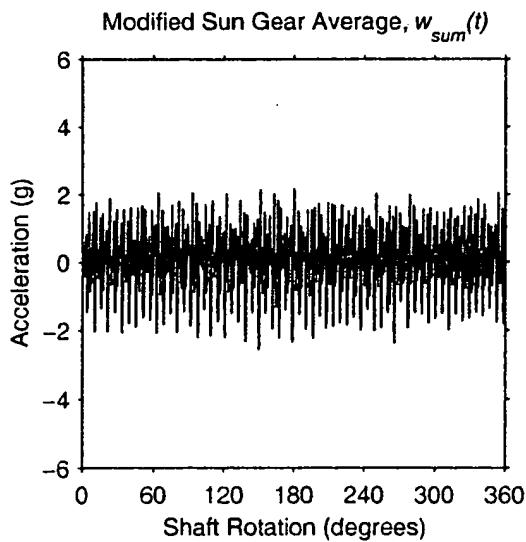


FIG. 4.22c

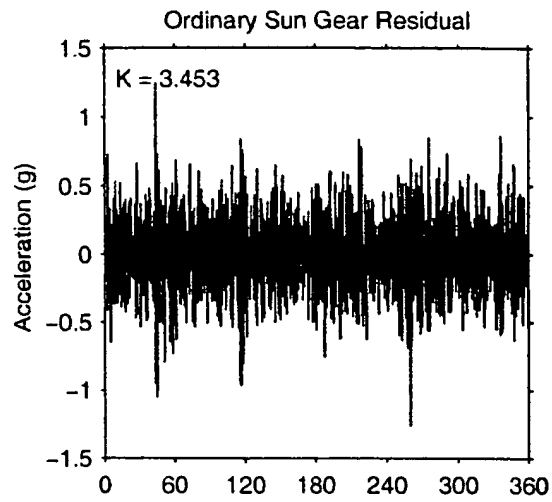


FIG. 4.22d

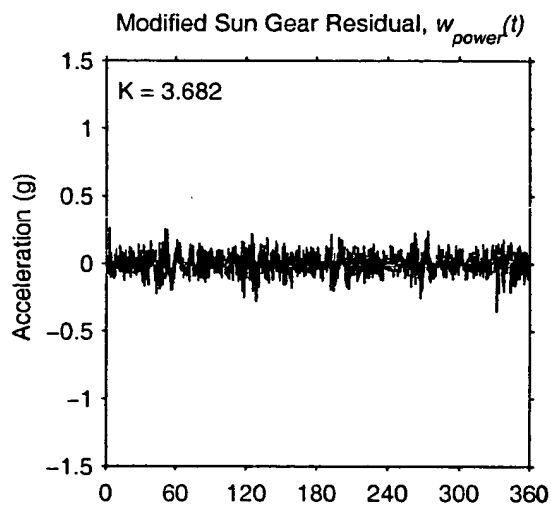


FIG. 4.22e

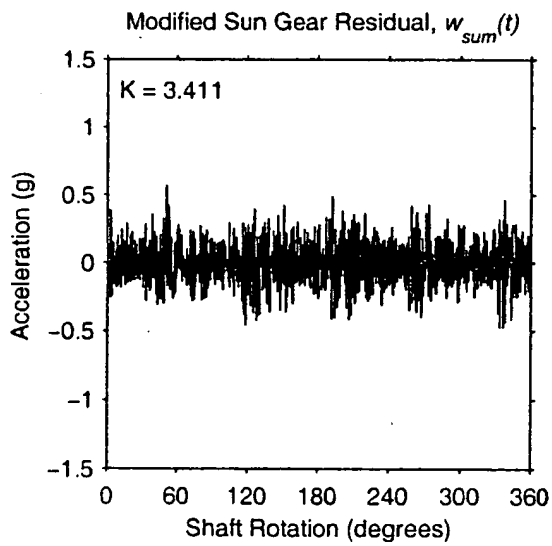


FIG. 4.22f

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Sun gear averages, 250 lb ft torque, starboard ring accelerometer.

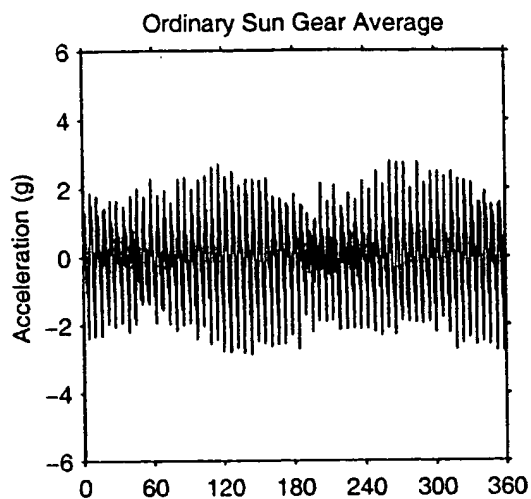


FIG. 4.23a

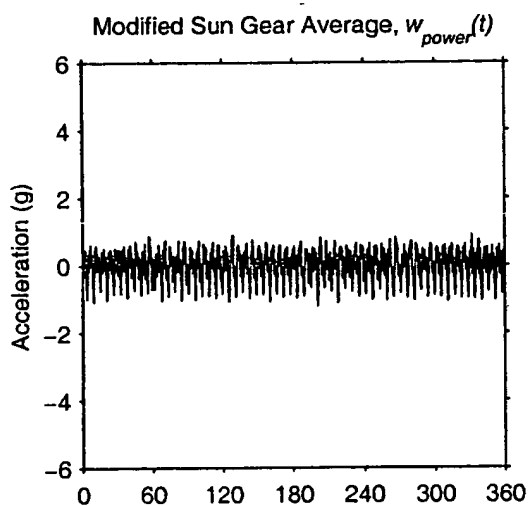


FIG. 4.23b

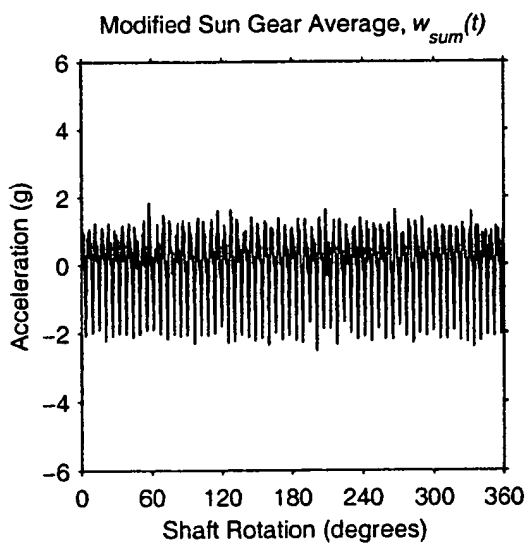


FIG. 4.23c

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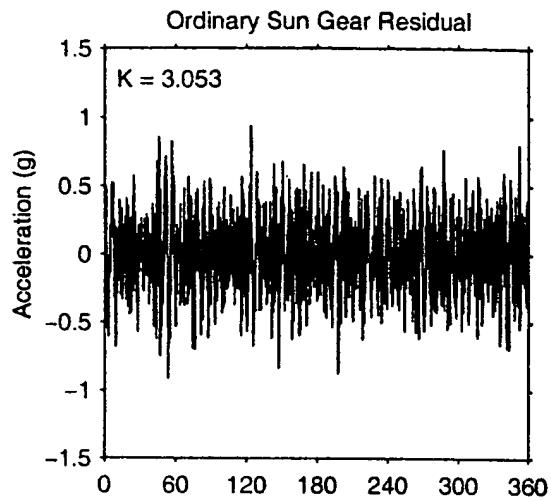


FIG. 4.23d

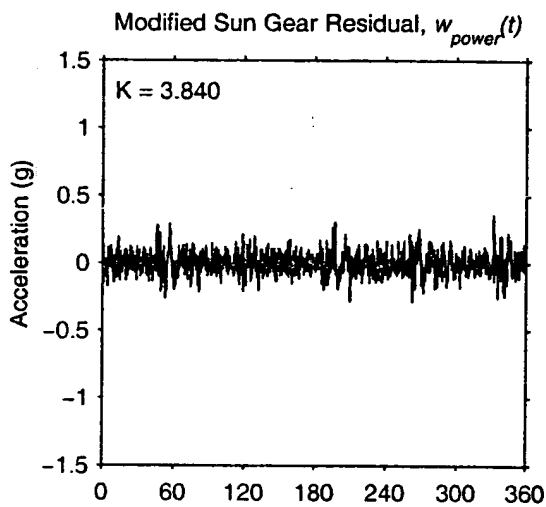


FIG. 4.23e

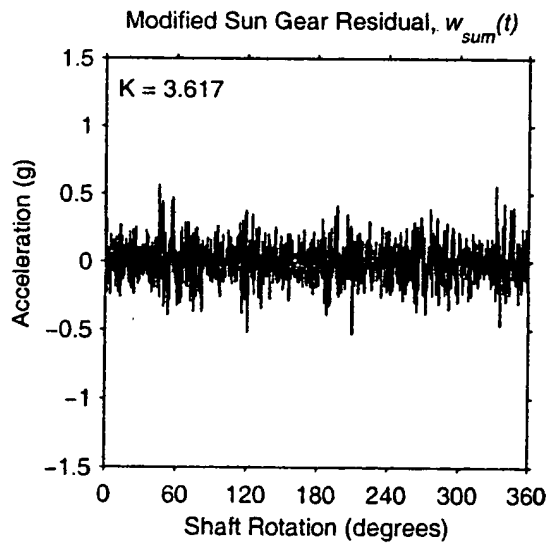


FIG. 4.23f

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Sun gear averages, 200 lb ft torque, port ring accelerometer.

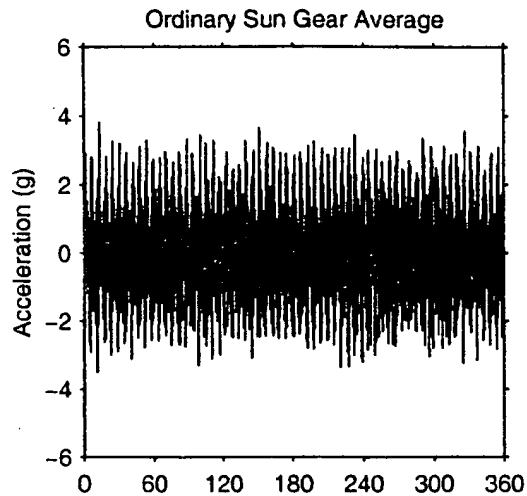


FIG. 4.24a

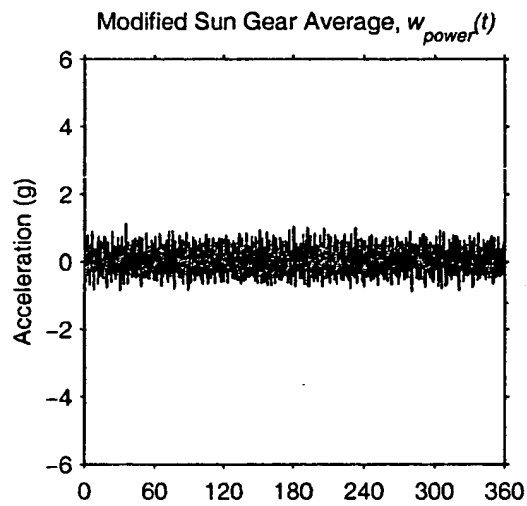


FIG. 4.24b

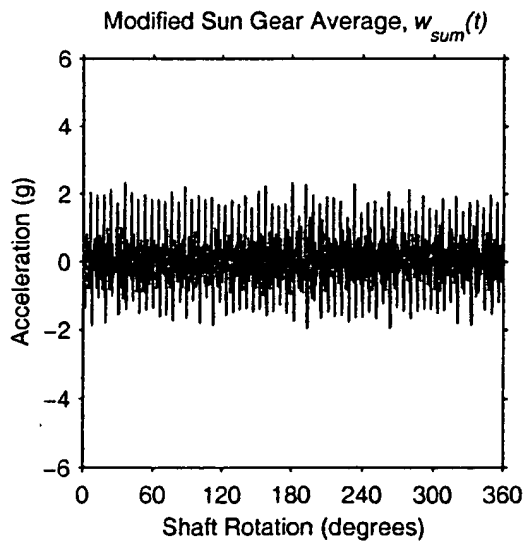


FIG. 4.24c

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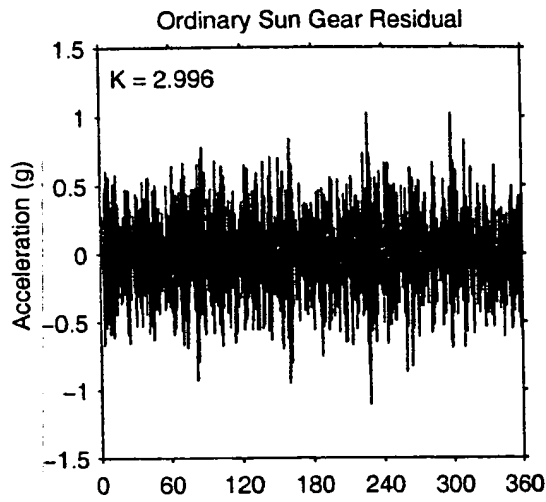


FIG. 4.24d

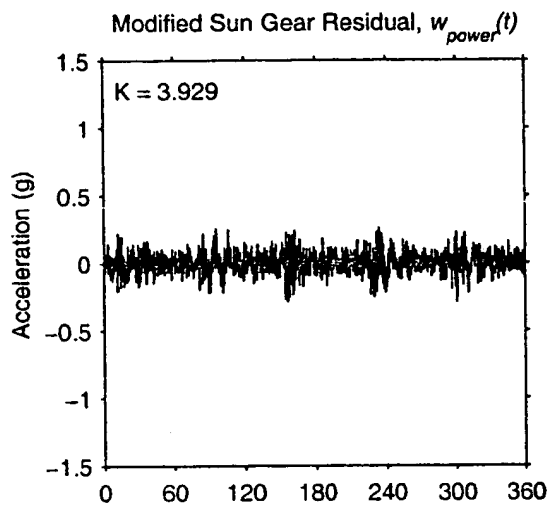


FIG. 4.24e

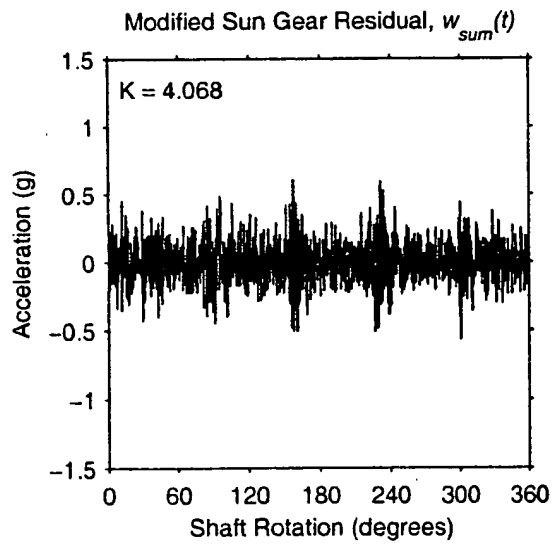


FIG. 4.24f

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Sun gear averages, 200 lb ft torque, starboard ring accelerometer.

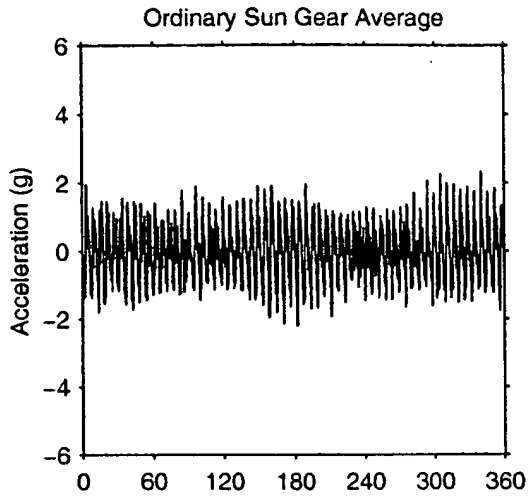


FIG. 4.25a

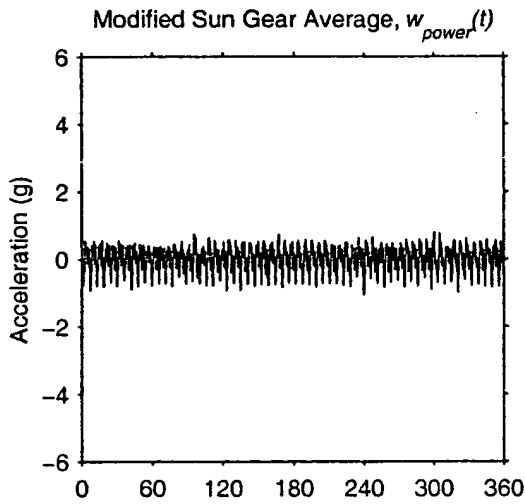


FIG. 4.25b

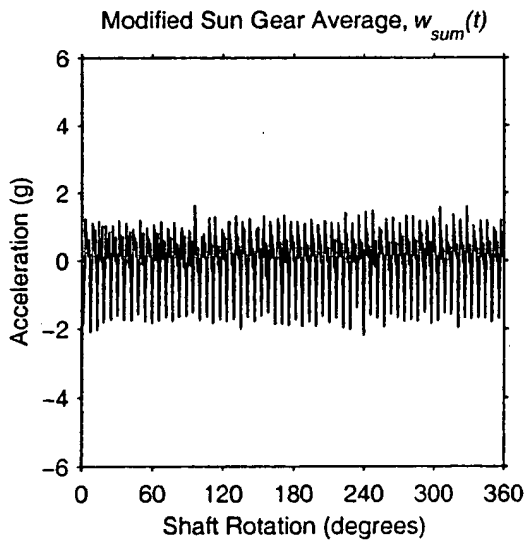


FIG. 4.25c

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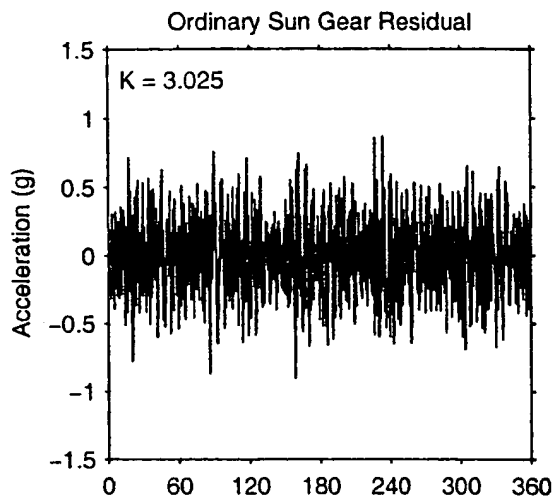


FIG. 4.25d

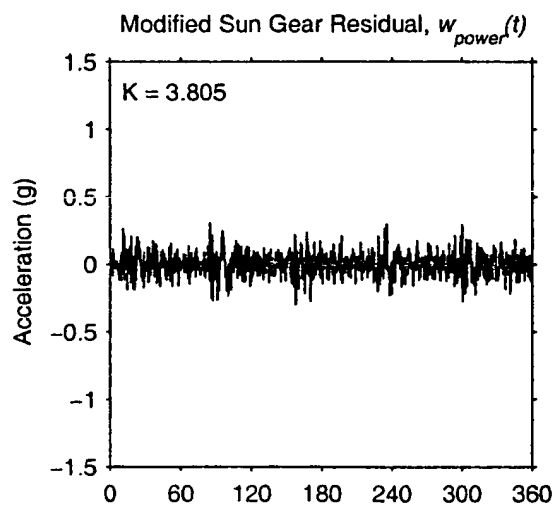


FIG. 4.25e

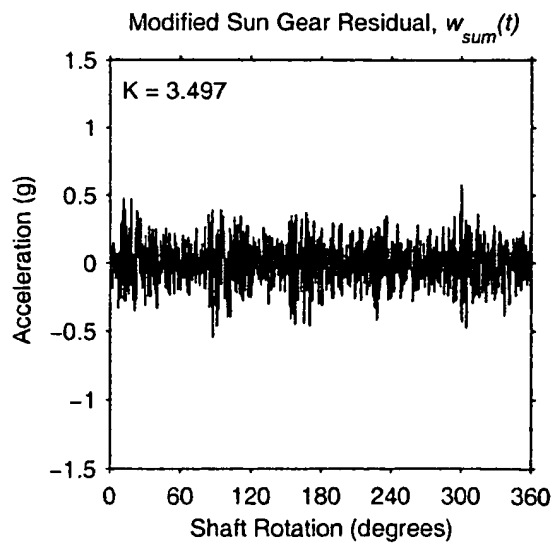


FIG. 4.25f

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Sun gear averages, 165 lb ft torque, port ring accelerometer.

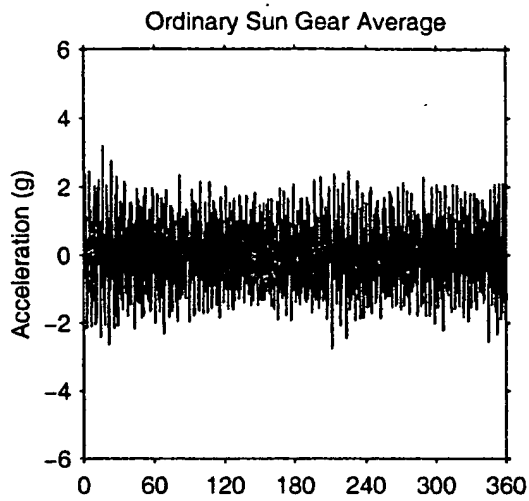


FIG. 4.26a

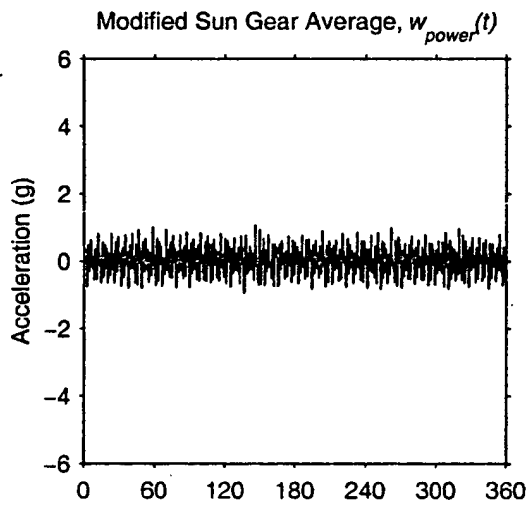


FIG. 4.26b

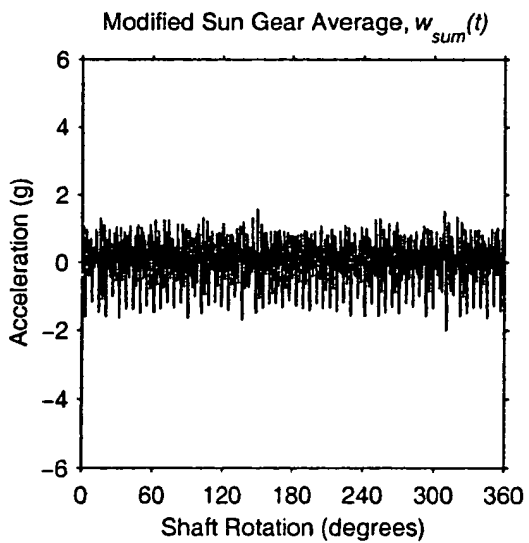


FIG. 4.26c

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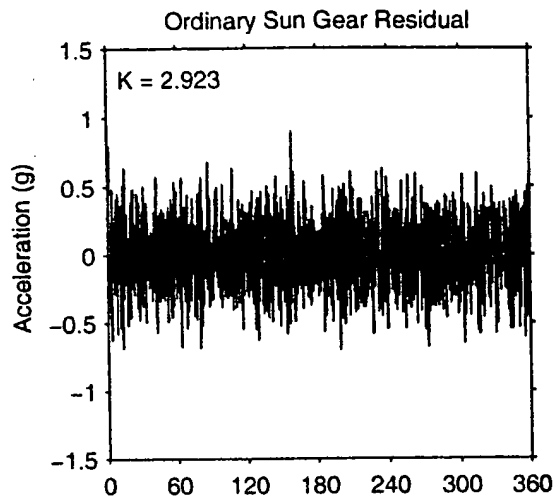


FIG. 4.26d

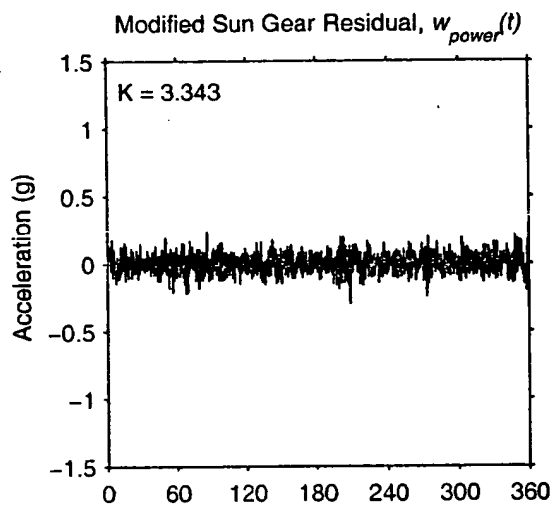


FIG. 4.26e

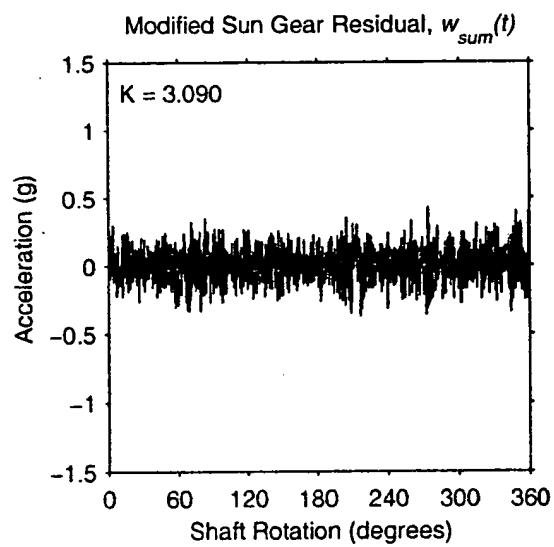


FIG. 4.26f

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Sun gear averages, 165 lb ft torque, starboard ring accelerometer.

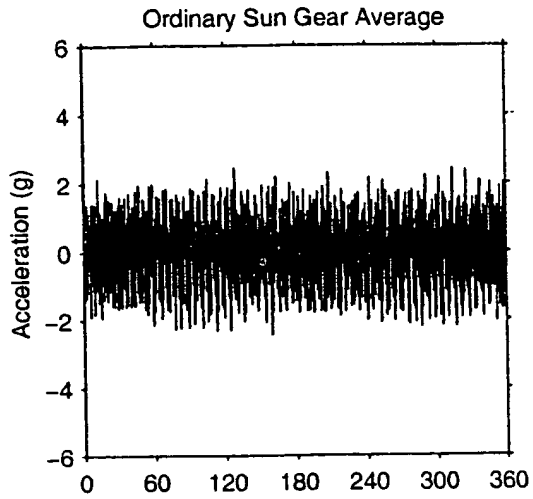


FIG. 4.27a

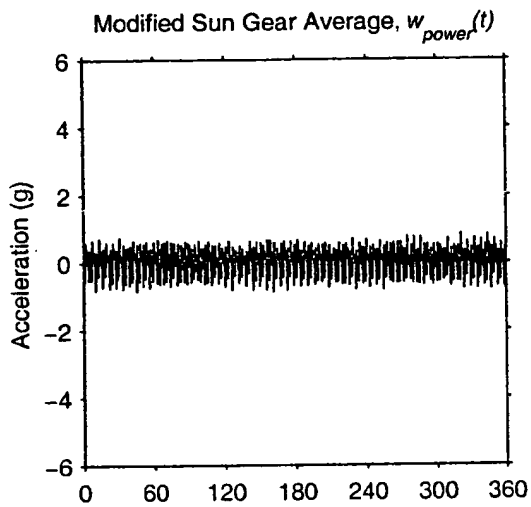


FIG. 4.27b

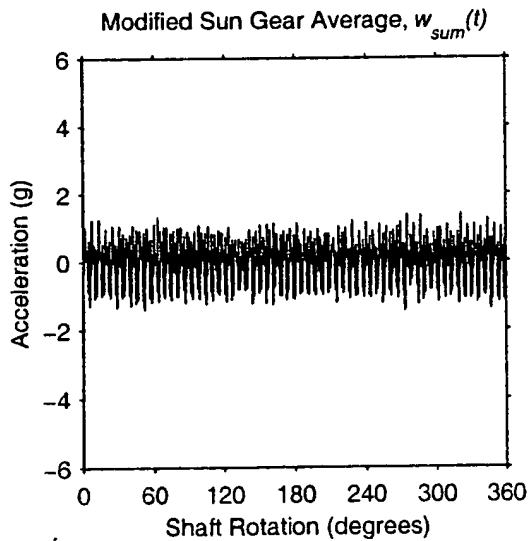


FIG. 4.27c

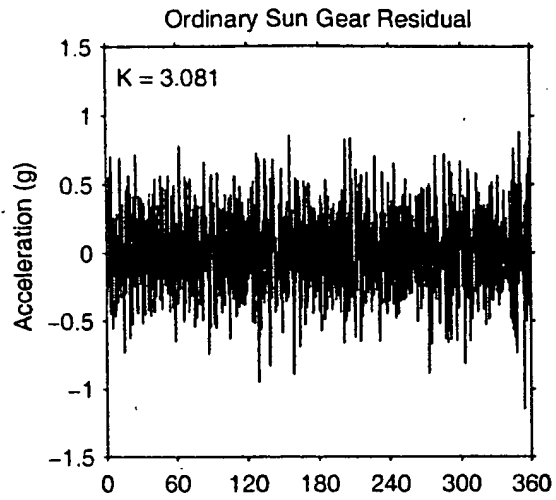


FIG. 4.27d

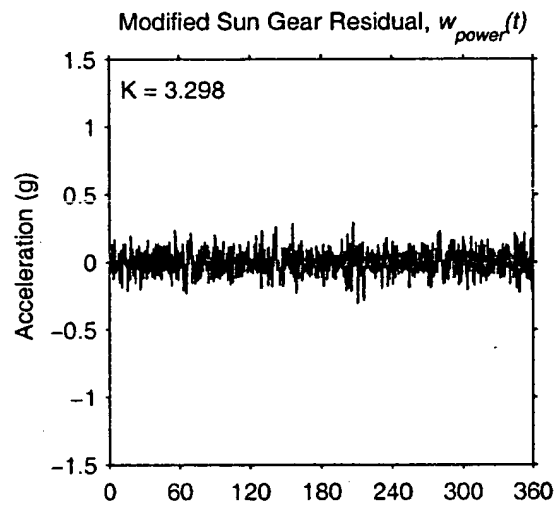


FIG. 4.27e

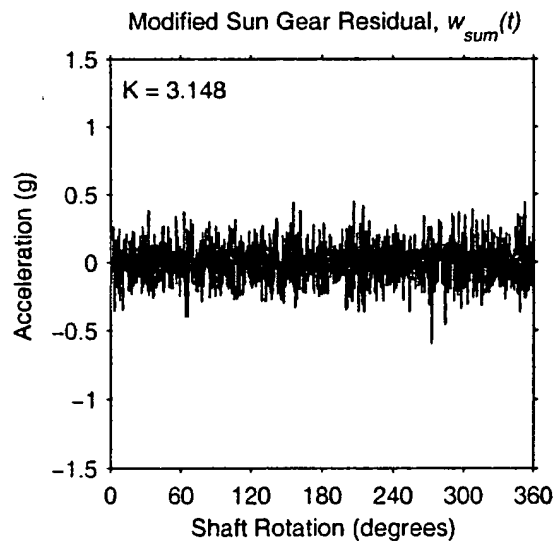


FIG. 4.27f

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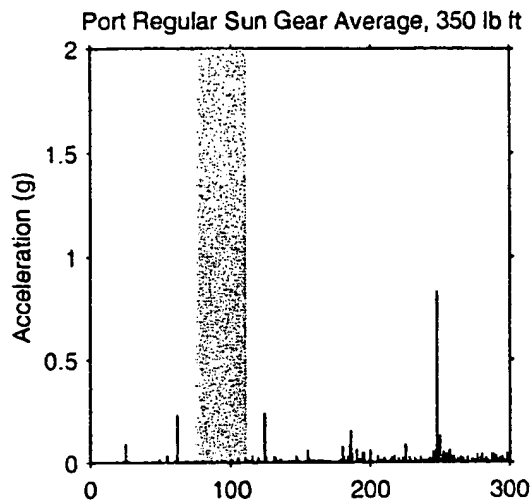


FIG. 4.28a

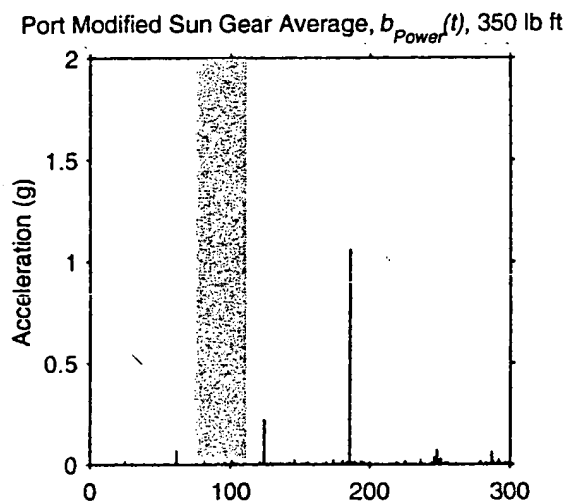


FIG. 4.28b

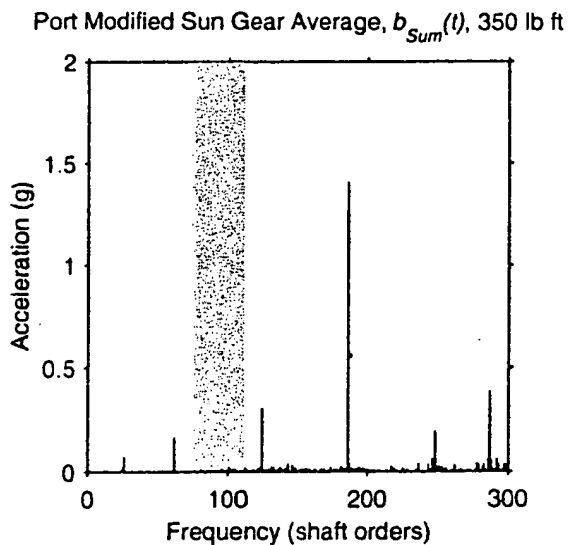


FIG. 4.28c

Spectra of sun gear averages at 350 lb ft from a gearbox without a sun gear fault.

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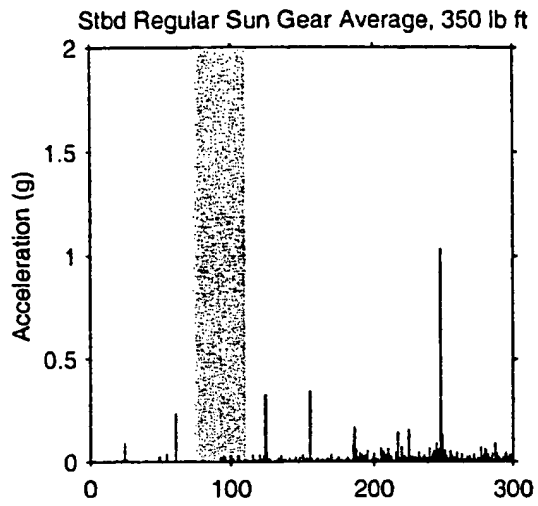


FIG. 4.28d

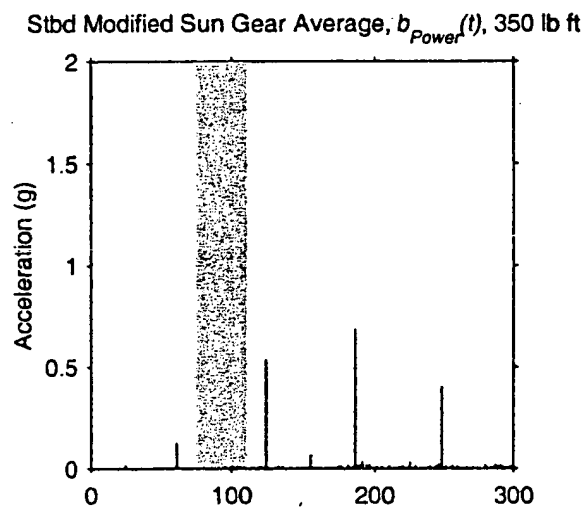


FIG. 4.28e

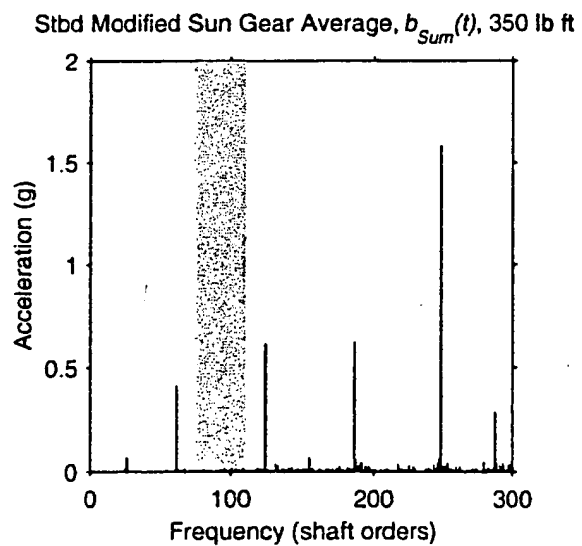


FIG. 4.28f